COMMODORE

SPECIAL ISSUE

NOVEMBER 1985

COMPUTING INTERNATIONAL £1

16 PAGE ADD-ON SPECIAL
The CCI Guide to all
Commodore Peripherals
you could use

PERSONAL COMPUTER WORLD
Show Report Special

ROBOTICS...
Interview Special

SPECIAL GAMES FEATURE ...
Totally Knockout
Action

PLUS
Megareviews
of the Month

The Final Cartridge
Special Test

M.U.D...
First Special Column

Peripherals? Get the best.

Special Software for the C16 ...
Very Special Tips for your 64 ...
and much, much more

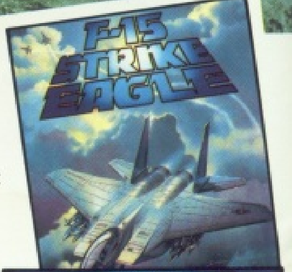
BELGIUM FR1.30 CANADA $3.50 USA $[illegible].25 GERMANY DM 7.5

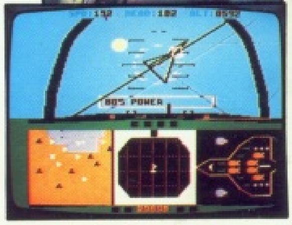
WIN *STEVE DAVIS TICKETS, CUES & BOOKS, PLUS SPECIAL ADD-ON PRIZES*

F-15 STRIKE EAGLE

MAJOR BILL

Hold Onto Your Headgear – This F-15 Is For Real!
You'll get all the sophistication and thrills of an actual fighter mission. This simulation will keep you excited for a long time.





F-15 COMPARISON

Feature	"Real" F-15	F15 Strike Eagle	"Fighter Pilot"
1. Multiple Weapon Systems			
● Cannon	Yes	Yes	Yes
● MK-82 Bombs	Yes	Yes	No
● Air-Air Missiles	Yes	Yes	No
2. Sophisticated Electronics			
● Heads Up Display	Yes	Yes	No
● Radar	Yes	Yes	No
● Electronic Counter Measures	Yes	Yes	No
● Inertial Navigation	Yes	Yes	No
3. Real Combat Missions	Yes	Yes	No
4. Developed and tested by Real Fighter Pilots	Yes	Yes	No
5. Aerobatic Flying (Loops, Splits and Yo Yos)	Yes	Yes	No

64/ ATARI CASSETTE

£14.95

64/ ATARI DISK

£17.95

GREAT REVIEWS!

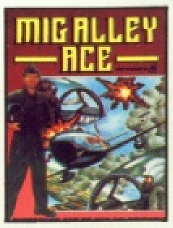
ANALOG – F-15 STRIKE EAGLE
..."Don't wait. RUN down to your local software merchant and buy a copy of F-15 Strike Eagle today. Tomorrow may be too late!" Patrick J. Kelley

U.S.A. TODAY – F-15 STRIKE EAGLE
"...this is more than the right stuff. Once you've gotten used to flying these banks it will be hard to go back to just cruising from La Guardia to Logan. F-15 is definitely the only way to fly." Marc Randolph.

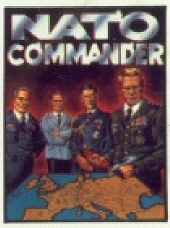
ANTIC – F-15 STRIKE EAGLE
"Launch into the most exciting aerial combat since Star Raiders with the F-15 Strike Eagle...F-15 is an engrossing game which challenges pilots of all skill levels..." Charles Jackson.

RUN – F-15 STRIKE EAGLE
"...The F-15 Strike Eagle is not an arcade game, but, rather, one of the most realistic combat flight simulators I've ever seen. If you're looking for a chance to experience some high adventure and danger in a realistic and challenging format, F-15 Strike Eagle is for you." Peter Paplaskas.

EXPERIENCE THE REALITY OF THESE OTHER GREAT SIMULATIONS FROM MICROPROSE:



Thrilling Combat!



Heart Pounding accelerated real-time defense!

"KENNEDY APPROACH..."

Exciting speech and Graphic Air Traffic Control action!

Solo FLIGHT

As close to the real thrill of flying as you can handle!

MICRO PROSE
SIMULATION • SOFTWARE

120 Lakefront Drive, Hunt Valley, Maryland 21030

COMMODORE 64, ATARI, APPLE, MACINTOSH, and IBM are registered trademarks of Commodore Business Inc., Atari Inc., Apple Computer Inc., and International Business Machines Inc., respectively. Software Speech by Electronic Speech Systems of Berkeley, Ca.

Dealers! For information on how to become a Transatlantic Simulations stockist telephone Centresoft on 021-359 3020.

Transatlantic SIMULATIONS

U.S. Gold Limited, Unit 10, The Parkway Industrial Estate, Heneage Street, Birmingham B7 4LY.
021-359 8881. Telex: 337268.

The one magazine every Commodore owner needs

COMMODORE COMPUTING INTERNATIONAL

Vol 4 No 4
November 1985

Inside

...NEWS

OVERVIEW 7
Has the C16 and Plus/4 been dropped? . . . Elite sue Alligata . . . Amiga launch details revealed.

PRODUCT UPDATE 78
New payroll for 64 . . . Sharing systems for schools and business . . . New and modestly priced 132 column printer, and more.

...REVIEWS

EASYSPELL 74
'Aving your spellin' corrected for you sounds great! Is it??

FINAL CARTRIDGE 76
An excellent all round cartridge to improve your 64, dramatically.

Feature of the month

ROBOTICS 10
Extraordinary revelations on the robot effect on our lives from famed robotic authority Richard Pawson — a gripping interview!

SPECIAL SUPPLEMENT 35-50
CCI's in-depth 16 page pull out peripherals supplement covering Joysticks, Trackerballs, Disk Drives, Wafer Drives, Graphic Tablets, Lightpens and Speech Units.

...FEATURES

PCW SHOW 8
Our roving reporter went, saw, gleaned the gossip, and gained the goodies. It's all here.

C16 SOFTWARE 13
Serious software for this underated machine is tested in depth.

MORE CHIPS 30
Inside information on the ever changing world of microchip technology.

...GAMES SECTION

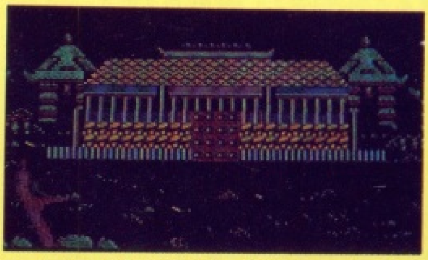
GAMES NEWS 16
You want games news and gossip? You got it! Everything you want to know about all the 'soon to be releaseds'.

TKO FEATURE 18
Fighting hits the screen, so CCI compares the two newest, and includes some revealing comments. A real Technical Knock-Out!

REVIEWS 26
Exciting, relevant and revealing reviews. See CCI, then decide.

MEGA REVIEWS 51
Five mega-sized reviews for some pretty impressive debuts, taken to their limits for the benefit of you — our reader. (Hello Mum!).

CHARTS 55
The Micro equivalent of Top of the Pops, only interesting, and without the ageing DJ's.



Exclusive!! This is the first ever look at Virgin's soon-to-be released Shogun game. More details will follow shortly.

...CONSTANT FACTORS

BOOK REVIEWS 21
Latest important computer books relevant to us all are reviewed.

READERS WRITE 31
Rae West continues to answer your technical queries, precisely and accurately.

SNOOKER COMPETITION 58
Win some pocketable Steve Davis style prizes in this easy-to-enter competition.

HINTS AND TIPS 60
Better late than never! The final half of the Relative files program.

MACHINE CODE 70
More printer utilities, this time for parallel printers.

BASIC 79
Renowned programmer Richard Darling shows you how to get 60K basic programs in a 64.

6 HITS TO HIT YOU FOR 6

NOW GAMES

AVAILABLE FOR THE COMMODORE 64 AND SPECTRUM 48K FROM 21 AUGUST FOR ONLY £8.95

Now Games *is a chart hit compilation of six top selling games from five major software companies. You'll not find better value or variety of gameplay all inside one box —* ***NOW THAT'S WHAT I CALL SOFTWARE!***

1 LORDS OF MIDNIGHT

BEYOND

— an atmospheric strategy adventure game with over 2,000 screens

2 BRIAN BLOODAXE

THE EDGE

— Brian conquers the Brits in this ingenious 104 screen platform game

3 STRANGELOOP

VIRGIN

— Many puzzles to solve in this deserted space factory where your only companions are robots (arcade adventure with 240 screens on the Spectrum and 250 on Commodore 64)

4 PYJAMARAMA

MICRO—GEN

— Wally is trapped in a nightmare, you must guide this wacky sleepwalker to find his alarm clock in this arcade adventure

5 ARABIAN NIGHTS

INTERCEPTOR

— Platform and arcade action are combined in this exotic game

6 FALCON PATROL II

VIRGIN

— All action in the burning desert. Guide a harrier jump jet to defeat devious enemy helicopters in this arcade game

NOW GAMES
For the Commodore 64
6 SIZZLING GAMES
COMMODORE 64

So rush to your nearest good software retailer and increase your games collection by 6 in one fell swoop!

AVAILABLE FROM ALL GOOD SOFTWARE RETAILERS

Also available directly from

VIRGIN GAMES MAIL ORDER, 2-4 VERNON YARD,
119 PORTOBELLO ROAD, LONDON W11 2DX.

NOW GAMES
For the Spectrum
6 SIZZLING GAMES
SPECTRUM 48K

ADVERTISING GUIDE

ADAMSOFT	Some useful utilities for the C128, 64, VIC 20, C-16 + Plus 4.	56
AIRBORNE LTD	Specialist simulation software at knockdown prices.	59
ANIROG SOFTWARE	3 in 1 – The Voicemaker – See the advert – read the reviews – buy the product.	49
ARIOLASOFT	Just 3 stunning new titles from a huge range of excellent software from one of the leading companys of the moment.	17
CALCO SOFTWARE	Mail order software at prices only Calco could muster.	54
CHEETAH MARKETING	The Rat, The Sweet Talker and the Mach 1: – only the advert canexplain.	45
CHROMASONIC	Starter packs, 128's, 1551's all available at your favourite Commodore dealer.	19
COTSWOLD	Wordprocessor/Letterwriter for the 64 and 128. Mail Order only so don't miss out.	59
DATAPEN MICROTECHNOLOGY	The quality lightpen with a superior performance for the 64 and Vic 20.	50
DATAPLUS	The Star 10C printer gives clean, clear and crisp graphics in seconds.	42
D.D.L.	Printers for the hobbyist up to the optimum partner for small business – educational facilities and more.	9
DIMENSION COMPUTERS LTD	Special Autumn offers on Commodore hard and software from the Midlands largest home computer store.	39,54
DOSOFT	A range of utilities for fast loading from tape to disk and disk to tape.	77
EVESHAM MICROS	The utility specialists with another selection of superb accessories for your Commodore.	65
F.C.C. SYSTEMS LTD	Centronics interfaces. Full Commodore graphics and special characters etc.	54
GOODBYTE	A speedy, efficient and reliable company which can bring you your favourite games at the best possible prices.	19
HANDIC SOFTWARE	An excellent selection of games, utilities & PC packages from Bridge to Superbox to Calc Result.	66,67
HOME & PERSONAL COMPUTERS	The utility cartridge that doesn't use memory, has 24K extra RAM for basic programs and a disk turbo that loads 6 times faster and saves it!	12
LEVEL LTD	Rae Wests books tell you everything you ever wanted to know about programming the Commodore 64.	65
LIGHTWAVE LEISURE LTD	The revolutionary new baseless joystick heads this list of Commodore neccessities.	49
MARCONI LTD	the trackerball.	42
MEEDMORE MARKETING LTD	All those famous Stack 100 products revised plus some new one, like the trackerball at only £39.95.	36
MICRO CONTROL SYSTEMS	The interface which will hypnotize your Epson into working with your Commodore.	56
MICROPRIDE LTD	Take pride in your Micro – alternative joysticks, trackballs, dust covers and data units.	53
MICRO INTERNATIONAL LTD	Superscript – the undisputed leader in the word processing field for the 64 and 128. Read all about it!	25
MR SOFTWARE	Bargain prices in the Commodore Club magazine. Secure your copy now.	14
SCIENTIFIC SOFTWARE	The professional statistics package for business users.	75
SCREENS MICROCOMPUTERS LTD	Super Graphix printer interfaces for the Vic 20, 64 and 128.	51
SELEC SOFTWARE	Prepare to be a millionare this winter with the help of the ultimate pools prediction program.	59
SILLY SOFTWARE	Well actually it's quite sensible – it's just the ridiculously cheap prices which are utterly stupid.	56
64 SOFTWARE CENTRE	The Largest wholesale and retail outlet for the Commodore 64 in the country brings you the latest offers and unusual programs.	6
SJB DISKS	Blank disks at low prices with lifetime warranty and free fast delivery.	75
SMC SUPPLIES	Create Hi-Res Graphics for your Commodore 64 instead of waving your wand you use the magic mouse.	49
SUPERSOFT	A versatile range of business, musical and games software for the CBM 64.	OBC
SYNDROMICS MUSIC	Syndrom Digidrum – now here's a rap, plug it in, your feet will tap.	34
TANDATA MARKETING LTD	You'll need a Tandata modem.	46,47
TRILOGIC	Tape back-up problems solved with this great device.	65
ULTIMATE PLAY THE GAME	Sir Arthur Pendragon at sea this time in this latest stunning arcventure from the undisputed champs in the genre.	27
US GOLD	F15 Strike Eagle – the latest and greatest simulation from UK specialists in imported American software.	IFC
VOLTMACE LTD	Whether you're at work or at home Voltmace has the products for you. Datapads and a joystick tested by Daley Thompson! (well – his game anyway).	50
VULCAN ELECTRONICS LTD	The Gunshot joystick helps you rewrite the high score tables whether it be for the Vic 20, C-16, Plus 4 or CBM 64.	29
WALRUS HI-TECH	Quick data drive for the CBM 64 & Vic 20 – Nothing fishy here! Get your tusks into this months special price.	50
WELWYN ELECTRONICS	Here's a way to make your home computer talk. Have you heard the word?	34

Opinion...

Dear Reader,

Over the years, computer owners have become increasingly machine specific in their interests, including attending exhibitions.

For Commodore owners, last June's Official Commodore Show remains the focal point of the year. However, the annual PCW Show resists the trend to specific loyalty and usually achieves a considerable measure of interest as a launch pad for new products across the whole range of computers.

This year's PCW Show (see pages 8 and 16) was, in sheer size, probably larger than any previous. Yet to some degree, it held much less excitement and novelty than in earlier years. The cause of this somewhat muted effect was the comparative dearth of new software.

There was some quite interesting new-or newish hardware; notably the Commodore 128, already widely seen and reviewed. But where was the stuff that computer buffs' dreams are built on? Where were the revolutionary peripherals, the exciting state-of-the-art ideas that would really make the new computers worth the buying? Are new games – many of which are adapted from well known arcade versions or variations on already successful old favourites – all the small computer industry can initiate?

While the business field continues to prosper, the home computer market is less encouraging. The competition is fierce for potential purchasers, both those who are considering upgrading to better machines, and for the less than feverish new buyer market..

Can the industry do nothing but offer familiar products? We have not included the launch date of peripherals in our special 16-page pull-out guide in this issue but useful, tried and tested though the majority of products we list may be, many have been around quite a time.

Is then the once urgent, youthful computer world losing some of its adolescent enthusiasm and inventiveness? Have the recent hard times – when many software companies plunged into liquidation and the Sinclair and Acorn bubbles burst – frightened away the all-out committment to the fashionable, thrilling new? Or was the PCW Show just so large and diffuse that it dwarfed and obscured whatever developments were around?

Over the coming months, you will be able to see in CCI what new exciting software emerges and judge for yourself whether caution has brought only a temporary or a permanent slowdown in the hell-for-leather flow of technological invention for which, until now, the computer industry has been renowned.

Yours sincerely,

Antony H Jacobson,
Publisher.

Editor .... Susan Pearce
Staff Writer .... Francis Jago

Subscriptions/Production Executive .... Sharon Gilkes

Illustration .... MJG

Advertisement Manager .... Peter Chandler
Assistant Advertisement Manager .... Paul Fenton

Publisher .... Antony Jacobson

Cover Design Graham Baldock
Cover pics .... courtesy of All American Adventure and Ariolasoft. Illustration by MJG.

Typesetting .... BWS Graphics

Telephone 01-278 0333
Editorial ext 274
Advertising ext 280
ext 286
Subscriptions ext 274

Contributors:
Bill Donald
David Brooks
Richard Darling
Rae West
Ray Medford
Permjot Singh
Gerry Kennedy
Antony Mael

Published by Croftward Limited
Finsbury Business Centre
40 Bowling Green Lane
London EC1R 0NE

Distribution by Magnum Distribution Ltd, Clerks Court, 18-20 Farringdon Lane, London EC1R 3AU.

Printed by Chase Printers Group, London and St Austell

ISSN 0276-596X

Commodore Computing International - an independent magazine for Commodore computer users - is not connected in any way with Commodore Business Machines UK Ltd. It is published 12 times per year by Croftward Limited. The publishers do not accept liability for any incorrect statement or errors contained in material from independent sources or authors which may be reproduced from time to time.

© Croftward Limited 1985

THE 64 SOFTWARE CENTRE
1 Princeton Street, London WC1
01-430 0954

software pricelist — prices include VAT
d = disk c = cassette r = cartridge

Accounting systems (Office use)

Anagram Systems — Sales Ledger	d	£75.00
Anagram Systems — Purchase/Nominal Ledger	d	£75.00
Anagram Systems — Cashbook	d	£75.00
Gemini — Cashbook (with nominal analysis)	d	£64.95
Gemini — Cashbook (with nominal analysis	c	£59.95
Gemini — Final Accounts	d	£64.95
Gemini — Final Accounts	c	£59.95
Gemini — Cashbook/VAT/Final Accounts	c	£89.95
Gemini — Cashbook/VAT/Final Accounts	d	£99.95
Microsimplex — Cashbook	d	£150.00
Studio — Payroll 64	d	£49.95
Dell — Invoice Generator II	d	£24.95

Stock Control systems

Practicorp — Inventory 64	d	£29.95
Gemini — Stock Control	d	£24.95
Gemini — Stock Control	c	£19.95
Anagram — Stock Control	d	£75.00

Home applications

Gemini — Home Accounts	c	£19.95
Gemini — Home Accounts	d	£24.95
Gemini — Combined Home Pack	d	£39.95
Gemini — Combined Home Pack	c	£34.95
Fieldmaster — Home accounts	c	£19.95
Adamsoft — Checkbook Manager	d	£14.95

Database Filing Systems

Fieldmaster — Mail label	d	£29.95
Practicorp — Practifile 64	d	£44.50
Precision — Superbase 64	d	£87.00
Precision — Superbase Starter	d	£39.95
Gemini — Database	d	£24.95
Gemini — Database	c	£19.95
Gemini — Mailist	d	£24.95
Gemini — Mailist	c	£19.95
Fieldmaster — Record Card	d or c	£19.95
Dell — Superfile	d	£14.95

Spreadsheets

Handic — Easy Calcresult	r	£49.95
Handic — Advanced Calcresult	r+d	£90.00
Practicorp — Practicalc 64	d	£44.50
Practicorp — Practicalc 64	c	£39.95
Practicorp — Practicalc II	d	£69.95
Supersoft — Busicalc 1	d or c	£17.95
Supersoft — Busicalc 3	d	£49.95
Fieldmaster — Worksheet	df or c	£19.95

ALL IN STOCK NOW — Callers welcome (10am – 6pm incl Saturdays)

Mail Order: Cheque or PO — add £2 for items over £20, others free Credit cards (Access/Visa): phone or write. Immediate despatch

The 64 Software Centre,
1 Princeton Street, London WC1

Please supply the following items:

1.................................... Qty..... @£....................
2.................................... Qty..... @£....................
3.................................... Qty..... @£....................
4.................................... Qty..... @£....................
TOTAL £....................
POSTAGE £....................
TOTAL £....................
Name.................................... Address....................
Visa/Access Card No ....
Date.................................... Signature....................

Word Processors

Supersoft Wordperfect	c	£17.95
Supersoft Wordperfect	d	£19.95
Simple — Simply Write	d	£46.00
Simple — Simply Write	c	£40.25
Hesware — Heswriter	r	£42.95
Fieldmaster — Pagewriter	d or c	£29.95
Bank Street Writer	d	£69.00
Precision — Superscript	d	£69.95

Utilities

Adamsoft — Ultrabasic	d	£19.95
Adamsoft — Videobasic	d	£42.00
Adamsoft — Chartpak 64	d	£24.95
Adamsoft — Superdisk	d	£12.50
Adamsoft — Graphics Designer	d	£19.95
Audiogenic — Forth 64	r	£29.95
Blitz compiler	d	£50.00
Handic — Mon 64	r	£34.95
Handic — Graf 64	r	£29.95
Fieldmaster — Poster printer	c	£19.95
Commodore — Simons Basic	r	£47.50
Kuma — BC Basic	r	£57.50
Practicorp — 64 Doctor	d	£19.95
Supersoft — Master 64	d	£71.30
Supersoft — Victree	r	£56.35
Supersoft — Mikro Assembler	r	£59.80
Supersoft — Zoom monitor	d	£14.95
Supersoft — Toolkit 64	c	£9.95
Supersoft — Toolkit 64	d	£11.95
Aztec — Turbo extended basic	c	£14.95
Activision — The Designer's Pencil	c	£11.99
CSM 1541 Disk Alignment	d	£59.95
FP — Pascal 64	d	£34.95
Oasis — Basic Lightning	c	£14.95
Oasis — Basic Lightning	d	£19.95
Oasis — White Lightning	c	£19.95
Oasis — White Lightning	d	£29.95
Oasis — Machine Lightning	c	£29.95
Oasis — Machine Lightning	d	£39.95
Talent — Panorama	c	£17.95
Talent — Panorama	d	£19.95
Skyles — 1541 Flash kit	r	£89.95
Epyx — Fast load	r	£49.95
Orpheus Pascal	c	£24.95
Broderbund — The Printshop	d	£44.95
Broderbund — Printshop graphics designer	d	£29.95

Simulations
Flight simulators

SSI — Combat Leader	d	£14.95
Sublogic — Flight Simulator II	d	£49.95
Sublogic — Flight Simulator II	c	£40.95
Supersoft — Interdictor Pilot	d	£19.95
Supersoft — Interdictor Pilot	c	£17.95
Activision — Space Shuttle	c	£11.99
Cosmi — Super Huey (helicopter)	c	£11.95
Microprose — Spitfire Ace	c	£9.95

War

SSI — Germany 1985	d	£49.95
SSI — Cosmic Balance	d	£44.95
SSI — RDF 85	d	£44.95
SSI — Kampfgruppe	d	£69.95
SSI — Operation Market Garden	d	£64.95
SSI — Imperium Galactum	d	£54.95
SSI — Field of Fire	d	£44.95
SSI — Carrier Force	d	£65.00
SSI — Geopolitique	d	£39.95
SSI — Breakthrough in the Ardennes	d	£65.00
SSI — Baltic 85	d	£44.95
SSI — Broadsides	d	£44.95

...news...news

Amiga Plans Announced

Commodore has at last released details on the launch plans of the Amiga. It will be on schedule for a UK launch early next year, and major software developers are in the process of receiving development briefings on the machine.

Chris Kaday, Commodore UK's marketing manager stressed that it is software that will be of the utmost importance between now and the machines launch.

"The **sheer power and versatility of the Amiga** will demand an exceptional calibre of software, which is why we are being highly selective in the choice of programs we support."

Mr Kaday also went into detail on the marketing policy that Commodore will adopt, which all in the computer industry believe to be the only point on which the Amiga could possibly fail.

Latest on C16 and Plus/4

Contrary to popular opinion, Commodore has not admitted to dropping the C16 or Plus/4.

Chris Kaday said of the rumours; "I think the situation is that what was actually being said was that we were building the existing components into finished units. One of the reasons for doing that is to make space for the manufacture of the 128.

"The conclusion drawn was a premature one, in that C16 and Plus/4's will be available for sale over Christmas, and will indeed be supported afterwards. **No final decision has been made to withdraw the products.**

"We are shipping products from one part of the country to another. What we build here in Corby is an internal decision."

Although an ambiguous statement, **it is clear as yet the C16 and Plus/4 are not dead.**

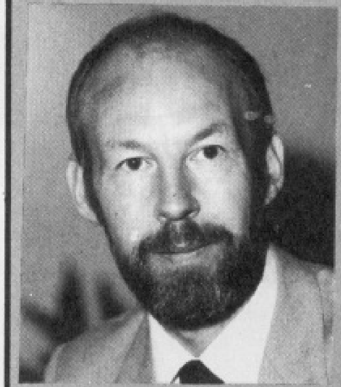
Elite snaps at Alligata

On Friday 13th (unlucky for some, but who??), Elite Systems Ltd and the Japanese company Capcom — authors of the arcade version of Commando — took proceedings in the High Court against Alligata Software Ltd alleging that the Alligata game "Who Dares Wins" was inter alia an infringement of copywrite. The game (reviewed on page 57, it may be the only place you see it!), is close, although by no means identical to the arcade version. However, Mr Justice Harman granted Elite a temporary injunction preventing distribution of this game by Alligata.

The case will go before the courts again on 19th September, when Elite will be seeking a continuation of the injunction.

Latest news is that Elite have signed up Steve Evans, ex-Alligata programmer and author of 'Who Dares Wins' to write the offical version of Commando.

Commodore Comments...



This month's Commodore Comment comes to you from Chris Kaday who recently joined Commodore as Marketing Manager.

The opinions published here are those of Commodore, and do not necessarily concur with the views of CCI.

"As I write this, many of us at Commodore are recovering from the PCW Show which was held on 4-8 September at Olympia. The show was extremely busy with attendances 50% up on last year, thus dispelling the doom and gloom many pundits spread about the state of the computer industry.

This was a major showing for the Commodore 128 and we filled the stand with 128's running 64 games, 128 software and CPM business packages, thus demonstrating the exciting versatility of this super computer which is, in fact, three machines in one. We confidently expect that at £269 the machine will be a winner this Christmas and the level of interest from prospective new users, both for home and business as well as existing 64 owners seeking an upgrade path, certainly supports this view.

Whilst the 128 is our latest offering in the market there are some really exciting things happening on the 64. PCW saw the launch of a range of amazing products from Music Sales both for the accomplished musician as well as the beginner. Music is fun and something that everyone cannot only listen to but play for themselves.

Finally there is a very special Christmas offering from Commodore — The Commodore 64 Christmas Compendium at £199. This consists of a Commodore 64, a cassette unit and three tremendous software packages — Designers Pencil, a superb graphics package from Activision; the Music Maker package for all the family to play from Music Sales, and a fun game based around the ever popular Adrian Mole. An added bonus is the latest Adrian Mole book, The Growing Pains of Adrian Mole, which will keep you laughing well into the New Year.

It's certainly going to be a great Commodore Christmas this year and we shall be so busy getting our products out into the market, that I shall probably have to wait for the 25th December to rest my feet from the PCW Show!"

Personal Computer World Show

Really the main event?

In the biggest ever PCW show, 50% larger than the previous one, with a total attendance of 70,000 people the show was not the failure everyone expected in this 'fading market'.

Although Atari were undoubtedly the stars of the show, Commodore were quietly confident as to what they had to show, and with the enormous public interest displayed in the 128, they must have felt quite pleased with themselves.

The Commodore stand was dominated by 128s, showing all three of its modes; in 64 mode it was shown running up to the minute games such as Way of the Exploding Fist and Frankie Goes to Hollywood, to display its compatibility; in 128 mode it was shown using all the available extra memory; and in CPM mode it was shown running business and utility software.

All this went to show just how adaptable and excellent this machine really is. Commodore expect the machine to be in the shops any time now, in time for the Christmas buyers, at the previously announced price of £269.

C128D absent

One disappointment was the lack of the C128D, a relatively portable 128 with a built in disk drive on the right of the keyboard. Having seen one of these up and running at Corby, I was slightly surprised not to see it promoted at the show, although Commodore strongly denied that it was being shelved.

Also on the Commodore stand was a section devoted to Music Sales who demonstated their range of musical peripherals for the 64 and 128, including the overlay keyboard retailing with the music maker package at £29.95. There was also an extremely dodgy Commodore-Rap, which is about as likely to be a hit as Rambo doing 'My Way!'

Chat line bridges gap

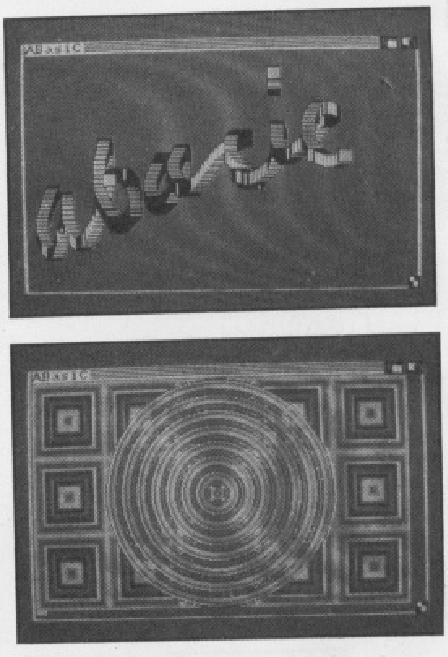
Compunet also had a small part of the Commodore stand on which to demonstrate their newest section, the Chat line, which allows anyone logged on to Compunet to chat with anyone else. Having tried this I can say that it's really good, bridging the gap between Multi User Adventures and normal telephone conversations.

128's dominated the Commodore stand

Although not officially open to the Public, both Commodore and Metacomco previewed the Amiga, Commodore to the Press and Trade at the nearby Royal Kensington Hotel, and Metacomco at their smaller, but no less well equiped for the demo, suite at the actual show.

Amiga shown to select few

Commodore were not showing the Amiga publically for two reasons; firstly that it would have undoubtedly overshadowed the 128, and secondly because it is not expected to be released until early next year. Even though it will be a long time before we see a completed Amiga, this did not stop everyone being totally amazed



Demonstrations of the Amiga's graphics capabilities were amazing

and delighted at the potential of this machine which, if priced and marketed successfully, should be the biggest selling mid-price computer ever.

Some of the graphics and sound demos were amazing, including one in which a three demensional ball bounced around the screen with accompanying sound effects when it hit the imaginary walls which would have been worthy of the Channel 4 computer graphics section!

Metacomco showed their excellent Amiga-Dos and ABasic, both excellently received all round, which is not surprising as they really do justice to this incredible machine. (See Games News for details of games shown at the PCW Show.) **F.K.J.**

At last, the big performance graphics printer with the low price

Designed for the Commodore 64 and the Vic20
SEIKOSHA GP-100VC
Seikosha GP-100VC from around £115 + VAT

The Seikosha GP-100VC with its unique combination of high performance and low cost is designed to put the quality graphics printer within easy reach of the home user.

Built extensively for the VIC Personal Computer, its elegant styling and wide range of features make the Seikosha GP-100VC a graphics printer you simply can't afford to miss.

The Seikosha GP-100VC features:

- Total VIC PC compatibility
- 80 column dot matrix impact format
- A print speed of 50 cps
- All VIC-20 characters, symbols and graphics as standard
- Compact design, ideal for home use
- Inverse character printing
- Printing of graphics image can be repeated
- Accepts paper 4½″ to 10″ wide
- Tractor feed

The Seikosha GP-100VC is available at your local computer dealer.

DDL

5 King's Ride Park,
Ascot, Berks. SL5 8BP
Tel: 0990 28921
Telex: 846303 DD LTD G.

THE FORCE IN DISTRIBUTION

© The Original Android Company

The robot existed in the popular imagination long before it became a reality. Fiction implied that the robot would eventually dominate. We have seen the muscles of human beings superseded by machines, and the invention of the computer – the electronic brain – now poses the question 'is the intellectual uniqueness of humans being questioned?

*** The legend of the Doppelganger held that a person's impending death was signalled by the appearance of his double. Some people view the robot as a mechanical equivalent of the Doppelganger – not so much a physical threat, but a challenge to our individuality.**

Sue Pearce dicusses the future implications of robots with Richard Pawson, author of The Robot Book.

ROBOT

Robotics is an embryonic science and, for at least the next few years, anyone experimenting with building their own robots has the opportunity to contribute to the state of the art.

One person who is making a name for himself in the field of robot technology is Richard Pawson who, at 25, directs a group of consultants specialising in the design of small-scale industrial, educational and domestic robots. Pawson has also recently had published his book, The Robot Book.

It was while studying Engineering Science that Pawson realised the potential of the micro-computer market, joining Commodore on two separate occasions in the field of software.

"I actually saw the very first PET computer made," says Pawson. "I realised that the micro-computer was going to happen. I spent three years doing a degree but really working for Commodore."

Believing that chance favours the well-prepared man, Pawson soon started researching into what was going to happen next. He says: "I discovered that the next major growth would be personal robotics. All the signs were there.

The Robot Book is the result of Pawson's research. It is an extremely attractive 'coffee-table' book which, Pawson claims, breaks new ground.

"The real new approach is in explaining how to build your own walking robot – using items such as lego, Fischertechnic and the Commotion Beasty controller – and linking it to a 64," says Pawson. "I think people will go on and do it better, but Pawson draws many parallels between it has broken new ground."

the development of micro-computers and personal robots, but also emphasises several differences.

In the early days of home computers, says Pawson, manufacturers didn't know what they had. No-one really knew what it was for. People created applications such as a database of recipes for the kitchen and controlling household lighting, but necessary interfaces were not available.

In time people discovered they were buying home computers not for utilities, but for entertainment and education.

Pawson says: "People were so thrilled with it that they forgot that they had bought something 'useful'.

"This is not quite so true of personal robots, as they are not so stunning. When I first had a computer, people were easily impressed by it. For most people, the first sight of a robot is disappointing."

The majority of current research into robotics is aimed at developing robots which function in the same way as the human body.

Pawson says: "If you want a robot to operate in a human environment, human functions are best."

However despite recent personal robot hype don't expect to rush out and buy a robot servant just yet.

"We will see androids in the house, but as a party piece," says Pawson. "Though it is ideal that we end up wth a robot butler-cum-maid.

"It isn't going to happen because the technology is never going to be developed in one go, but in stages. People will have lots of small robots in the home, all with individual functions."

If the idea of a robot around the house for fun is appealing, how about a robot pet?

Pawson estimates that by Christmas of 1986 you will be able to buy your own robot cat or dog for under £100.

'It will be a long time before we can emulate a dog or cat," says Pawson. "However, they will resemble existing animals after a fashion – a bit like Doctor Who's K9."

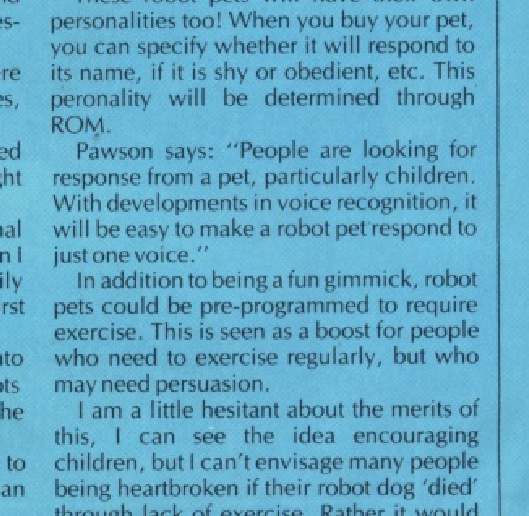
These robot pets will have their own personalities too! When you buy your pet, you can specify whether it will respond to its name, if it is shy or obedient, etc. This peronality will be determined through ROM.

Pawson says: "People are looking for response from a pet, particularly children. With developments in voice recognition, it will be easy to make a robot pet respond to just one voice."

In addition to being a fun gimmick, robot pets could be pre-programmed to require exercise. This is seen as a boost for people who need to exercise regularly, but who may need persuasion.

I am a little hesitant about the merits of this, I can see the idea encouraging children, but I can't envisage many people being heartbroken if their robot dog 'died' through lack of exercise. Rather it would be grumbles about the expense of repair. I suppose that it all depends on how successful the concept of personality is.

And what happens when you go on



© Frank Spooner Pictures

Andy Warhol is known to have said 'I have always dreamed of being a robot'. This waxen image of him (above) contained 54 moving parts, and was built at a cost of $400,000 for a television special in 1983.

holiday? Will hotels accept robot doggies – I doubt if customs would let them through easily – or will we see the emergence of robot kennels?!

As personal robots begin to appear around the home, so robots will play an increasingly important part in industry.

Pawson says: "I think it is degrading for humans to do what robots can do better. There are also dangerous or unpleasant jobs that would be better suited to robots."

TS...

A Challenge to our individuality ?

© Windward

The picture of Richard Pawson (above) was produced with a conventional television camera interfaced with a home computer and a dot matrix printer.

Rejecting the idea that high technology causes widespread unemployent Pawson says: "The real reason for unemployment in this country in economics, technology is only a small proportion of the cause. Using robots in industry creates wealth. Without that wealth, there is no chance of creating employment.

"We have got to push robots in industry," he continues. "If we don't, the countries that do will put us out of business." Pawson foresees a resurgence in small industries such as hand-crafted goods. Perhaps in place of Fiat's advertising campaign 'hand-built by robots' we will eventually see companies using the catch-phrase 'hand-built by humans'!

The personal robot industry will, says Pawson, grow up separately. Along with areas such as voice recognition, Artificial Intelligence is another important aspect of a robot.

Pawson says: "I'm of the school of computer scientists which believes that if you want to develop Artificial Intelligence, there is no use trying to model effects such as speech and language. The only way is to look at the physical structure – the neural network – of the human brain."

Robots are generally depicted as not needing sleep or rest. They will do if a 'brain' is built around the normal network. Dreaming is getting rid of jumble. Robots will have to dream – to have regular intervals in which to decide which information, or data, gathered during a period must be kept and which should be discarded.

Pawson cites the example of the 'garbage collection' carried out by early Commodore computers to illustrate this point. As the robot is created in the image of man, the fears depicted by science fiction come to the fore.

Robots are already being used in factories and hospitals. Military defence experiments with robots armed with machine guns.

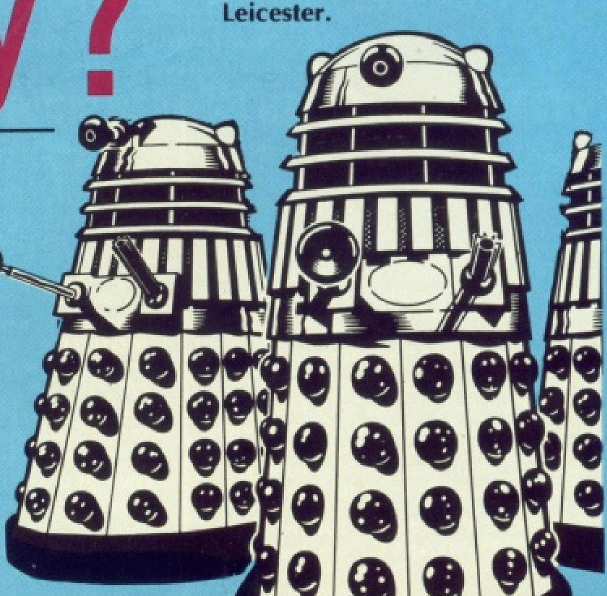
> ***Throughout history, humans have sought means of amplifying their own effectiveness. Today we face the prospect of the most comprehensive amplifier ever built — the robot.**

"If you develop more and more powerful robots and computers, you give them more responsibility," says Pawson. "Take, for example, computers holding the entire Inland Revenue records, or robot life support systems. When you give that responsibility to a robot you can't allow some human, whether by mistake or intentionally, to sabotage it.

"It's the 'you can't pull out the plugs' stand. You cannot allow one person to bring a country to its knees. You have to give computers or robots the ability to protect itself – not necessarily by weapons but by sealed circuits."

So what happens if the robot develops a malfunction and rejects human interference? An interesting thought.

***These excerpts are taken from The Robot Book available at £7.95 from Windward, distributed by WH Smith Distribution, St John's House, East Street, Leicester.**



© Rod Vass

OR... MADE BY ALIEN

Studio Schaap

THE FINAL CARTRIDGE®

THE FIRST OUTSIDE OPERATING SYSTEM FOR THE CBM 64

This new operating system built in a cartridge does not use any memory and is always there. Compatible with 98% of all programs.

Features:

- **DISK TURBO** - 6 times faster disk access - loading and saving.
- **TAPE TURBO** - 10 times faster, even with files - normal Commodore commands - compatible with standard turbo's.
- **ADVANCED CENTRONICS INTERFACE** - compatible with all the well-known centronics printers and Commodore printer programs. Prints all the Commodore graphics and control codes (important for listings).

  Advanced screen-dump facilities. Prints Low-Res, Hi-res and Multicolour. Full page!!! Even from games and paint-programs, like Doodle, Koala Pad etc. Searches automatically for the memory-address of the picture.
- **24K EXTRA RAM FOR BASIC-PROGRAMS AVAILABLE:** Two new commands ,,Memory read'', ,,Memory write''. They move 192 bytes with machinelanguage-speed anywhere in the 64K Ram of the CBM 64. Can be used with strings and variables.
- **BASIC 4.0 COMMANDS** - like Dload, Dsave, Dappend, Catalog, etc.
- **BASIC TOOLKIT** - with Auto, Renum (incl. Goto and Gosub), Find, Help, Old, etc.
- **PREPROGRAMMED FUNCTION KEYS:** - Run, Load, Save, Catalog, Disk commands, List (removes all list-protections).
- **KEYBORD EXTRA'S** - Allows you to delete part of a line; stop and continues listings; move cursor to lower lefthand corner. Pokes and Syscalls in Hex. Typ-command operates your printer as a typewriter.
- **COMFORTABLE EXTENDED ML. MONITOR:** - with relocated load scrolling up and down. Bankswitching, etc.
- **RESET SWITCH:** - resets to monitor; resets with old, resets to Hi-Res printing; resets every protected program.

ON/OFF SWITCH - we hope you never need that one.

12 Months replacement guarantee.

14 Days money back guarantee if you are dissatisfied.

SPECIAL INTRODUCTORY PRICE

FOR ONE **£ 50,-**

FOR TWO **£ 37,-** each

FOR THREE OR MORE **£30,-** each

Don't wait for your friends
ORDER ONE NOW!!!
Just pay the difference if you reorder within a month.

H&P COMPUTERS

U.K. ORDERS Barclays and Accescards or Cheques should be made out to:
H & P Computers, 9 Hornbeamwalk
Witham Essex CM8 2 SZ England.
Telephone: 0376 - 511471.

copyright and registered trademark H&P computers Wolphaertsbocht 236
3083 MV Rotterdam Netherlands Tel.: 01031 10231982 Telex 26401 a intx nl

The other side of the C16

Many C16 owners have been disappointed by the relatively limited choice of software available. Permjot Singh evaluates a selection of C16 utilities.

You'll be forgiven for thinking that the C16 is just a games machine. Despite the relatively small amount of software that is available for the C16 I have managed to find some non-game software. Yes for the good old C16.

In this article I have reviewed most of the non-game software Packages available for the C16 (at time of writing).

Firstly, I would like to clear the confusion caused when most people think of non-game software as business software; this is not so, non-game software is any piece of software which is not a game, two good examples are Physchedelia and Graphic Master.

I will be looking at software packages from word processors to graphic utilities, from filing systems to music. All the items mentioned in this article are supposed to fit the small users budget (below £15).

The programs mentioned do not require any qualifications for use, they just require someone looking for other uses and ways of seeking pleasure through their C16 other than killing swarms of aliens.

FILING SYSTEMS

I thought that considering the C16's limited memory, us C16 owners would not see these type of programs available, well not only did two software houses market this type of program, a jolly good job they did of it. Well, what is a filing system? . . It is like lots of little boxes — each box represents a letter of the alphabet, in that box are cards, each card contains details of an animal whose initial is the same as the letter outside that box. How does a computer make it easier? Firstly a computer tape takes up much less space than 26 little boxes (there are 26 letters in the alphabet. Honestly!) then it is much easier to type in the initial of the animal than find one card out of 100.

Currently there are two different makes of filing systems that will run on the C16.

1) DATA 16 £5.95
2) SUPERFILE 16 £7.95

DATA 16

At £5.95 it is certainly very good value for money, it has all the necessary features of a good filing system required by a home user.

When loaded Data 16 displays a menu with eight options: add record; amend; sort; search; print; save; read; exit. Many of the options have further choices; therefore I could not hope to explain the full capabilities of Data 16. However, I shall explain the basics briefly. First of all you are, logically, supposed to choose the add record option, as without any records you will not be able to perform any other functions. After selecting this option you are asked for Data 1 — regard it as a title it can be up to 28 characters long. Once you have entered that, you are then asked for Data 2 which can be up to 87 characters long. If you have added a few more records then you can use the sort function, which will sort the files out according to their alphabetical value. You can then save the file on tape. Let's say you meet someone and you become friends (I know it's unlikely but I have to use some example) you decide to add your new friends telephone no. to your list (you can use up to 150 records). All you do is read the old file and add the new pieces of data then save the file again.

The package is ideal for beginners as the manual is very clear and precise, the program was also very user friendly.

Sadly the program was not in an attractive package which does not help to inspire enthusiasm.

Overall a very well written program which I would recommend to a beginner.

Data 16 is available through mail order.

Contact: A&C Software, Dept. 1, 75 Oakthorpe Gardens, Tividale, W. Midlands B69 2LF.

SUPERFILE 16

At £7.95 this is also a good value for money package, I felt that this package was more professional and superior to the previous item.

When loaded it displays 7 options: transactions; new file; search; file and retrieve; utilities; quit.

Now do you see what I mean! This program is more complicated. Whereas before we had a simple 150 records with two data items stored in them, this package offers 30 records, but the ability to hold fifteen pieces of data in each one. For example when you choose option 2 — new file, you are asked for a title to the file, let's call it software. Then the good old C16 asks us how many fields (pieces of data) we want. We choose five for: title; companies name; price; date of purchase; our own rating. With each field title we also have to tell the computer the length of the characters we will store in that field (maximum is 25).

Having done this, we then opt for transactions, this enables us to fill in the files we set up. As you can see this program is more complicated than Data 16. From there it's just like the previous program with sort, search and save options.

Unfortunately, I did not find this package very user friendly. The manual was clear, but did not cover all the needed information. The extra two pounds will probably go towards the very neat packaging of this program.

Overall a nice piece of work which the user could find very useful.

Contact: Tynesoft, Addison Industrial Estate, Blaydon, Tyne & Wear NE21 4ZE.

WORD PROCESSORS

I found three WP packages for the C16: Word Perfect; Text 16; Script Plus.

The price of all three varied considerably. Word Perfect was £12.95. Text 16, the cheapest was £5.95. Script Plus was £34.95 on cartridge; I did not review it as it did not suit my idea of a small users pocket.

What is a WP (word processor)? . . . It is used mostly for documentation (writing letters etc), the text is written on the screen, it can then be saved on tape or dumped on to a printer. Why not just buy a typewriter? I hear you say, well the answer is very simple; let's say you wrote this letter and it is very neat, but then you make a mistake, you would probably have to type the whole letter out again.

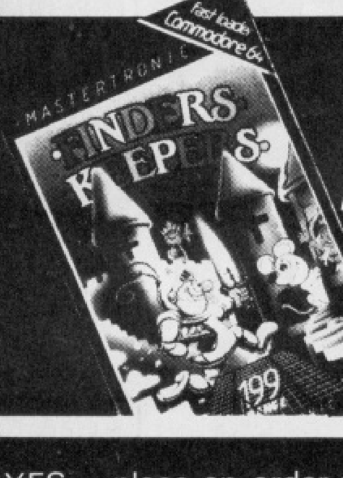
With a WP this situation is unlikely to arise as before text is dumped on to the printer you can see the text on the screen, you can also make multiple copies. If the print-out is not as you expected it to be all you do is just alter the text and dump it out 'again until your satisfied.

WORD PERFECT

£12.95 for a program may seem expensive, but for a WP it is no high price to pay.

Word Perfect was in a very neat and attractive case, with a very comprehensive

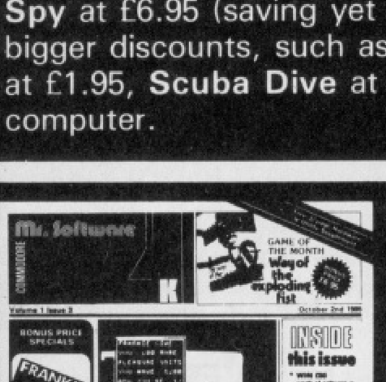
Mr. Software



MASTERTRONIC
KIKSTART
Off-Road Simulator
fast loader
Commodore 64
MASTERTRONIC

FREE GAMES!

YES....place an order for our Commodore 64 Magazine and we will send you one of the above games absolutely free. We will also enrol you in our Discount Software Club enabling you to purchase software at huge savings over shop prices. We offer all the latest titles at substantial discounts such as, **Frank Bruno's Boxing** at £3.95 (saving £3.00), **Frankie Goes To Hollywood** at £6.95 (saving another £3.00) or **Spy Versus Spy** at £6.95 (saving yet another £3.00). We also have a number of older titles at even bigger discounts, such as, **Attack of the Mutant Camels** at £2.95, **Chinese Juggler** at £1.95, **Scuba Dive** at £2.95 etc. In all we have over 200 titles available for *your* computer.



SIX MAGAZINES A YEAR

A subscription of just £5.00 will bring you six magazines a year through the post. Each magazine is packed with reviews of all the latest software, reader's games playing tips, competitions to enter, our reviewer's personal choices and a summary of how the other magazines rate the new releases.

HARDWARE AND UTILITIES SUPPLEMENT

Every new subscriber to the magazine gets a 32-page review of some of the more popular utilities — such as word processing software — and hardware including joysticks.

HOTLINE KEEPS YOU UP TO DATE

Subscribers to the magazine can phone our 24 hour Hotline for up to the minute news of the latest releases. A three minute recording, updated weekly, details the new titles and their prices. Club members may order by phone too!

EASY ORDERING

You can order from our substantial range as and when you like. There are no minimum order requirements — you don't *have* to buy anything at all. When you do order we do our best to despatch your goods within a week — often quicker.

DON'T TAKE OUR WORD......

Here's what somme of our subscribers say:-

"Many congratulations on your excellent Club, may it prosper greatly."
Mark A. P. Colebrook, Tenerife, Canary Isles.

"I think your Club is sensational, terrific — who else could offer such bargains."
David Barrows, Northampton.

(Original letters available for inspection.)

Mr. Software

**KELVIN HOUSE, TOTTERIDGE
AVENUE, HIGH WYCOMBE,
HP13 6XG. (0494) 450587**

Mr. Software

SUBSCRIPTION FORM CC1/11/85

I wish to become a subscriber to the Mr Software:
☐ Commodore Magazine
for the next 12 months, for which I enclose £5*. I understand you will send me your most recent Club Magazine by return and that if I'm not completely satisfied within two weeks I can return the game & magazine for a refund. I would like as my FREE game:-
☐ Finders Keepers ☐ Kik Start

Name (BLOCK CAPS) ....

Address ....

....

Postcode..............Cheque/Postal Order No.................

Or charge my Access/Visa account

☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐

(£5* applies to UK & BFPO only. Other rates are £7 Europe, £9 USA & Middle East, £12 Australia, Far East & S. Africa.)

manual. When it loads it asks you for information regarding the print-out you require; the width of the page; length of page, printer device number (usually 4 or 5); and a secondary address (either 0 or 7).

A fresh screen is then displayed with some information being displayed at the top. The important piece told you the numbers of lines left.

It is hard to review WP as they all follow the same pattern. I felt the package was worth the money as it had very powerful editing facilities. When using more than forty columns the screen scrolls, I did not really like this as it is easy to forget what you have just written on the last line.

A nice feature was that when you came near the end of a line a little 'twing-a-ling' went off to remind you, however, if you did manage to go over the line, the word you are in between is transferred to the next line. This makes typing easier as you do not have to worry about pressing the return key at the end of each line.

There is much more to offer in this well laid out package, in fact the manual is 16 pages long so I could not possibly explain the full features of the program. Overall a very good program.

Contact: Supersoft, Winchester House Canning Road, Wealdstone, Harrow, Middlesex HA3 7SJ.

TEXT 16

Text 16 is produced by A&C; the producers of Data 16; they both cost £5.95, this package was also a very good package for the beginner.

Text 16 has most, if not all, of the essential requirements of a word processor.

To start with you are allowed to print in either 40 or 80 column, both give a very nice left-right margin. The screen then displays a menu of options, you are most likely to choose option 1 first; write text. 62 lines of text are allowed, if you did choose 80 column, the line stays on one screen and does not scroll, I liked this as with one glance you could see all the text. Like Word Perfect, a beep is created when you approach the end of a line. The beep continues if you press a letter beyond the line range, unlike Word Perfect, Text 16 does not go to the next line. It does not allow the use of the cursor keys, to edit you have to use the edit option.

There are some good points about this program that you should bear in mind. It is almost three times cheaper than Word Perfect, it also had some features that the other did not, like a word count. I also found Text 16 much more user friendly, but if you are prepared to read the 16 page Word Perfect manual you should have no problem.

Overall a very good program in it's own respect.

Contact: A&C Software, Dept 1, 75 Oakthorpe Gardens, Tividale, W. Midlands B69 2LF.

So far the programs I have mentioned are 'serious programs'. I will now inform you buddies of non-game entertainment software. A good example of such a program is Physchedelia — which CCI have already reviewed.

GRAPHIC UTILITIES AND MUSIC PROGRAMS

I received three programs to review; Paintbox; Music Master; Graphic Designer.

The C16 has simple but very creative sound available. The C16 also has some very impressive graphic capabilities. I did not actually review Graphics Designer as I felt it was a program which had to be used substantially before a fair comment could be made.

MUSIC MASTER

Available from Supersoft (the producers of Word Perfect) the tape version costs £12.95, £14.95 for the disk version, this suggests this is no cheap program.

I am no musician, but still I felt very impressed by this excellent program, I even managed to play a version of 'Mull of Kintyre'. Although I have not had this package for very long, I have had hours of fun already with this excellent piece of software.

When loaded the screen shows the keyboard of a piano — good graphics — when you press a key a little dot appears on the key just touched. As I explained earlier, I am no musician, so it is very difficult for me, if not impossible, to explain the music which is offered by this brilliant program. I will just say 'you can do a lot'. There are lots of things (well I do not know what they are called) you can alter which will all lead to different and interesting effects, there are about ten different background tunes you can play, you can program your own No. 1 rhythm. If you create a masterpiece you can record it, save it, edit it etc. The keyboard is laid out like a proper piano, so all you musicians out there will be familiar with it straight away.

Although some of you are bound to be put off by the cost of this program, I felt that if you had an interest in music you would enjoy this program for hours on end.

The program was accompanied by a 16 page manual. It contains many listings which will allow you to do even more with this program.

Apart from Berks 3 this has been one of the most enjoyable pieces of software I have had to review.

An excellent piece of software which I recommend highly.

Contact: Supersoft, Winchester House, Canning Road, Wealdstone, Harrow, Middlesex HA3 7SJ

PAINTBOX

I wish more programs would come out like this one has, with the 64, 16 and Plus/4 version all on one tape.

At £9.95 this program is not very expensive, it was also one of the first graphic programs that has come to my attention.

You can indeed draw multicoloured high-resolution pictures with this package, they can be drawn with keyboard or joystick.

When loaded, a clean screen is shown with options at the bottom of the screen, you select by moving your joystick horizontally until it is over the option you want, then it is just a matter of pressing the fire button. There are many options due to that I could not tell you every option available, however I will tell you chums about the draw option.

Line; lines; rays; frame; box; circle; disc.

The cover says that having a joystick makes the program easier to use, I found it easier using the keyboard. I did manage to draw some impressive pictures with this package.

The package was good and did manage to do what it claims to.

I was also quite impressed by the simplicity of this program, it came with clear instructions for use.

Having said this, the program had one problem; it did not have the facility to include the pictures in your own programs; after I realised this, all my effort seemed a waste. Nonetheless I must admit that I did enjoy using this program.

This is one of those programs that is very good but let down by one missing ingredient, still I do expect it would appeal a lot to someone out there.

Contact: Audiogenic Software Ltd, P.O. Box 88, Reading, Berkshire.

CONCLUSION

A lot of good utility software is now being produced for our good C16. So far the overall standard of these programs has been very good. It is impossible to review every piece of utility software available for our TOM (Thoroughly Obedient Moron) — that's what my computer studies teacher calls her computer. As more C16 software is being published I hope to provide a regular update on this area.

As you can see the C16 is not just a games machine.

Games News: Hot off the Press

Due to the PCW show many new games have either been released, or as in most cases announced.

Some of the most exiting games shown were the newest titles from **Ocean** and **US Gold.** Ocean must have the scoop film rights of the year with 'Rambo – First Blood II'. At the show they had preview clips of the film and even some Rambo look a likes wandering around, though who they convinced of what I'm not too sure.

US Gold had previews of their newest titles, with clips of Goonies, and a very impressive demo of the newest **Epyx** title, Winter Games. This really does look as if it will be as good as their lastest, Summer Games II; and next month we'll be reviewing it, and organising a really mega-competition!

The Edge were showing their newest 64 game, Wizardry, reviewed elsewhere in the issue, and this seemed to go down really well.

The most obvious denominating characteristic of all the new games for the Commodore was the outstanding use of both the graphics and sound chips. This was displayed well in **Jeff Minters** newest game called Battlyx (wow man!!), which seems to combine suped up versions of all his previous games, with a relaxation mode for if you get too worked up whilst playing – a real likelihood by the speed some people were playing!

Ocean and **Imagine** also showed the **Konami** arcade versions of games they are planning to release shortly, including Yie Ar Kung Fu – perhaps not surprisingly a fighting game, Tennis – a doubles game and Ping-Pong – a lovely version of the very skilful table top game.

Novagen showed a demo of Mercenary, a vector graphic flight simulation/arcade game. It seemed to be really well done, and next month we should hopefully be reviewing a full copy in depth, if Paul Woakes has managed to finish the game.

Melbourne House showed a video of Lord of The Rings, to promote Philip Mitchell's latest blockbuster. As well as this they gave glossy postcards of Terrormolinos, their latest graphic adventure based on the wonderful holiday resort (eh????).

Argus Press Software announced, at a rather nice trade launch (or should that read lunch??), that they will be reissueing the **Bug-Byte** label games, at a budget price. As well as this they showed Schizofrenia, and brief glimpses at the sequel to Rupert and The Toymakers Party, which looked nice (aahhh!).

Martech showed previews of their latest games, including Geoff Capes Strong Man, a new sports simulation which will not require the joystick snapping antics of decathalon type games, but more skill and strategy. Though it seems to me that Geoff Capes and Strategy go together like Simon Le Bon and racing yachts. Zoids will be another new release, based this time on the big selling toys.

Ariolasoft were amongst the most impressive games houses at the show, with a large stand displaying all their new games. Having been pretty quiet recently they have got the rights to **Broderbunds** games such as Karateka, and Stealth. The games all seem pretty good and hopefully they will keep up this policy, as the more stateside games we get the better.

Another US import house, **Activision,** showed their latest programs; including the newest version of the little Computer People Research Project. In this version your pet man can play cards with you, adding more artificial intelligence to this already excellent little program. More details will be published next month hopefully. They were also previewing the newest **Lucasfilm** games, originally for the Atari, but due for conversion to the 64.

Elite Systems were neatly placed at a Hotel nearby where previews of Frank Bruno's Boxing were available, and they also announced their up and coming titles such as Commando – the officially licensed version of the arcade game and Scooby Doo, a 'Computer Cartoon' from the great childrens series.

Orpheus showed a preview version of the Young Ones with nice graphics and a really good version of the theme tune. Quite what the scenario of the game is going to be I'm not sure, but I wait in anticipation.

Firebird showed the newly converted **Ultimate** games for the 64, Sabrewulf and Underwurlde. Sabrewulf is absolutely amazingly like the Spectrum version, and equally as good.

CRL showed bits and pieces and promoted their Bladerunner game, which, if the music is anything to go by should be excellent.

LORD OF THE RINGS
GAME ONE

Beyond showed a video of Superman to promote the game of the same name, and one called Nexus, which sounds pretty outstanding, as well as the new Spy vs Spy.

Lastly I would like to say something about **System 3.** Although their much hyped International Karate was not on show they managed to create a lot of interest, and finally were asked to leave, by having semi-naked women parading around their stand. It says a lot to me if the only way they can attract attention to their games is by promotional stunts like this. I await the now delayed Karate with interest!

FKJ

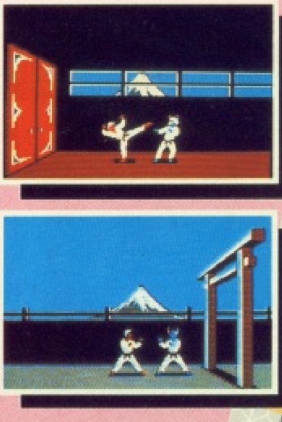
3 NEW COMMODORE 64 CASSETTES OUT NOW FROM ARIOLASOFT ▶ ▶ ▶

▶ KARATEKA

A Karateka is one trained in the Way of Karate, the centuries old martial art of Japan. In this classic story of one man's battle against insurmountable odds, your mission is to rescue a beautiful princess from a dungeon deep inside the palace of the evil warlord Akuma.

Brøderbund have created an arcade action game as close to an interactive movie as computer game players are likely to see. Extremely large and realistically animated figures come alive against beautifully detailed scrolling backgrounds. You are in full control of the hero's every movement. Walking, running, bowing and all fighting movements including the strategic timing and placement of kicks, thrusts, jabs and punches are an integral part of the gameplay.

The story progresses through a series of increasingly more challenging encounters with the enemy, until you finally meet the ultimate opponent. Built-in surprises make trying to rescue the princess difficult and addictive.



- ▶ *Suspenseful, move-like story*
- ▶ *Run, Punch & Kick ability*
- ▶ *Smoothly animated characters*
- ▶ *3D scrolling backgrounds*
- ▶ *Realistic Karate fights to the death*

Karateka
from Brøderbund
Fast Load Chrome Tape
CO...
128 Co...
The Incredible 3D Ka...
U.S. No. , HIT
US No 1 HIT!!
A FABULOUS 3D MARTIAL ARTS KARATE PROGRAM

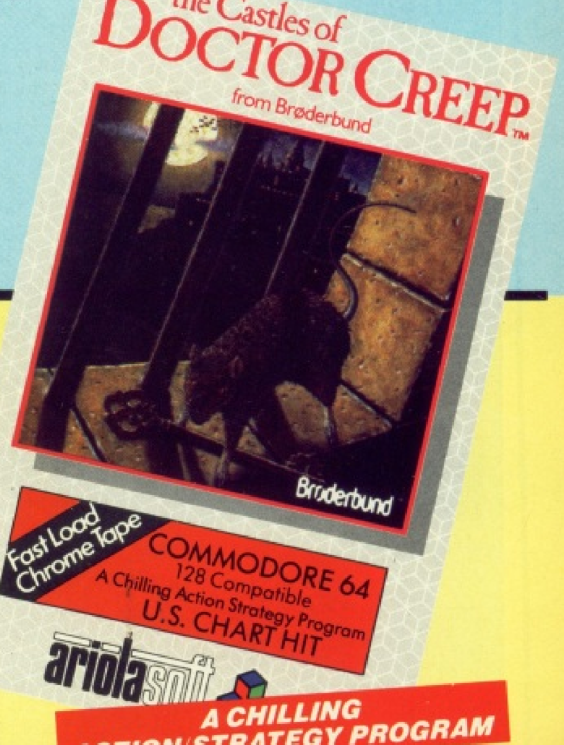
STEALTH™
from Brøderbund
Brøderbund
Fast Load Chrome Tape
COMMODORE 64
128 Compatible
A Stunning Visual Action Program
U.S. CHART HIT
A LONE FIGHTER AGAINST DEADLY ALIENS

▶ STEALTH

STEALTH has everything the arcade action player dreams of. You are right at the heart of the action as you pilot a powerful Stealth Starfighter on a mission of utmost importance – to destroy the Dark Tower and with it the Merciless Council of Nine.

The sky is alive with warp-fighters closing in from all directions. The landscape bristles with automated radar towers firing heat-seeking projectiles of doom. Robot-controlled photon tanks . . . high energy laser artillery . . . all of this and more await players of STEALTH.

- ▶ *Stunning 3D effects*
- ▶ *Deadly Enemy Attack Planes*
- ▶ *5 Levels of Skill*
- ▶ *Vicious Heat-Seeking Missiles*
- ▶ *Ominous Dormant/Active Volcanoes*
- ▶ *Positive/Negative Energy Fields*


the Castles of DOCTOR CREEP™
from Brøderbund
Brøderbund
Fast Load Chrome Tape
COMMODORE 64
128 Compatible
A Chilling Action Strategy Program
U.S. CHART HIT
ariolasoft
A CHILLING ACTION/STRATEGY PROGRAM

▶ THE CASTLES OF DOCTOR CREEP

Thirteen castles containing over 200 rooms await inspection. You will find each room filled with challenging puzzles and sinister surprises. Force fields, electrostatic generators, death rays and wandering mummies are only a few of the treats in store.

THF CASTLES OF DOCTOR CREEP is a very challenging arcade strategy game, full of surprises and the Doctor's rather weird sense of humour. There's no turning back on a tour of the good Doctor's home. You will want to keep coming back for more of the Creepy hospitality.

- ▶ *2 Player interactive action*
- ▶ *13 Separate Castles*
- ▶ *Over 200 Rooms*
- ▶ *Mummies and Frankensteins*
- ▶ *Deadly Lightning Machines and Trapdoors*
- ▶ *Perilous Moving Ray Gun*
- ▶ *1 or 2 Players.*

Available from all good software retailers – if its not there, please order it – or in case of difficulty send your crossed cheque/P.O. made out to ***Ariolasoft U.K. Ltd.***, including your own name and address, to Ariolasoft U.K. Ltd., Suite 105/106, Asphalte House, Palace Street, London SW1E 5HS.

▶ ***KARATEKA*** ▶ ***STEALTH*** ▶ ***CASTLES OF DOCTOR CREEP*** – Commodore 64 cassettes – ***£9·95*** each.

(Please allow 28 days from release for delivery)

ariolasoft
HIGH PERFORMANCE PROGRAMS

Francis Jago is knocked out by two examples of the newly-born genre – Fighting Games

It's taken a long time for fighting games to reach the 'humble' home micro. In many ways this is surprising as it would seem to be one of the most obvious of subjects for a game, especially as war and destruction games are so popular.

The obvious answer to this is that these games did not arrive in the arcades until early last year, and that conversion from the dedicated arcade machine to a home computer like the 64 is a complicated business.

When the games finally did appear, they were of superb quality. Games such as Way of the Exploding Fist received absolutely rave reviews, but the question that must be asked is: why do programmers have to wait until a game has been an arcade success to turn it into a home computer game?

Although there are exceptions to the rule, notable Elite, most of the top 10 games in the games charts will have been developed after the arcade machine has shown there is a market for that type of game. Sports simulations are a prime example of this, with Hyper Sports, Summer Games II and Daley Thompsons Supertests all riding high in the 64 charts, nearly two years after track and field first appeared in arcades.

Perhaps even more surprising is that it has taken such a long time for professional programmers to start using the full potential of home micros — three years ago you would never have seen Elite on a 64, although the computer has not changed.

Activision have started a reverse trend, which I really hope will continue, by having Pitfall II converted to an arcade machine.

Karateka

A Karateka, (as everyone knows??), is someone trained in the art of Karate. In this case it is you and your joystick that must single handedly dispose of many opponents in the quest to rescue a fair maiden.

Loading Karateka is a long winded process, although it is made a lot better by some nice, if not very oriental, introduction music, and some beautiful graphics showing the evil Emperor banishing the Princess.

When the game has finished loading you are ready to fight. You are displayed as a man wearing full fighting outfit, with your first opponent running towards you.

The Hero is controlled using a joystick, and although quite slow to start with, the pace and speed soon hots up. You are capable of all the usual kicks, sweeps, jabs and punches, and to defeat all the emperors evil warriors.

The first two or three times I played the game I was disappointed to see how easy it was, but the minute I got past the third warrior, I realised I had underestimated the game!

As the game develops so does the playability, with it becoming annoyingly hard to defeat the final few warriors, who manage to read your movements perfectly.

Overall Karateka is a game which should keep you happy for many hours, both because of the beautiful graphics, and the continual challenge it presents.

Fast Loader: Novaload.
Graphics: *****
Sound: ***
Playability: ****
CCI Rating: ****
Price: £9.95 cassette.
Contact: Ariolasoft, Asphalte House, Palace Street, London SW1. Tel: 01-834 8507.

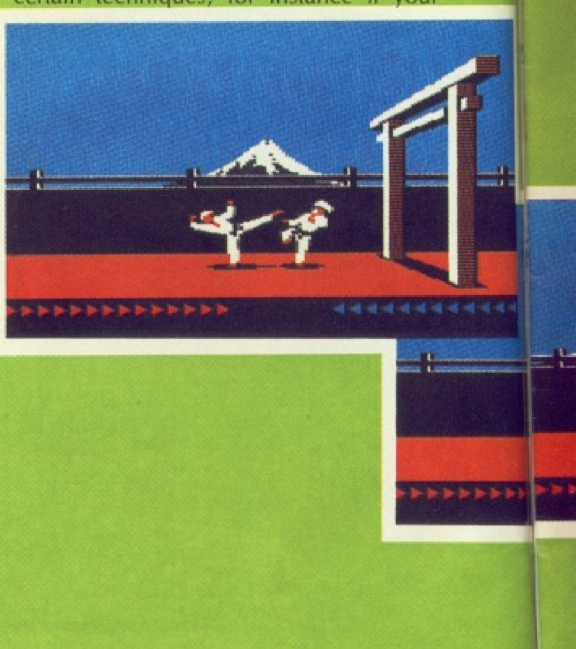
Barry McGuigans World Championship Boxing

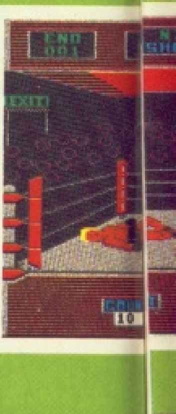
Although classed as a Sports Simulation, Barry McGuigan's Boxing is much, much more. As well as manual dexterity, to suceed in this game you must decide all the options of your fighter, will he be a slugger or a more delicate type?

Having chosen which type of boxer you wish him to be, and what colours you want him to fight in, you can get down to the basics of fighting.

Unless you wish to be a challenger (unadvisable until you have gained some experience) you must start right at the bottom of the heap, fighting pros who are the circuits losers.

Having chosen who you wish to fight, you are told how many weeks there are to the fight and you must then allocate the amount of time you wish to spend training certain techniques; for instance if your





strength is low then a few weeks weight training wouldn't go a miss.

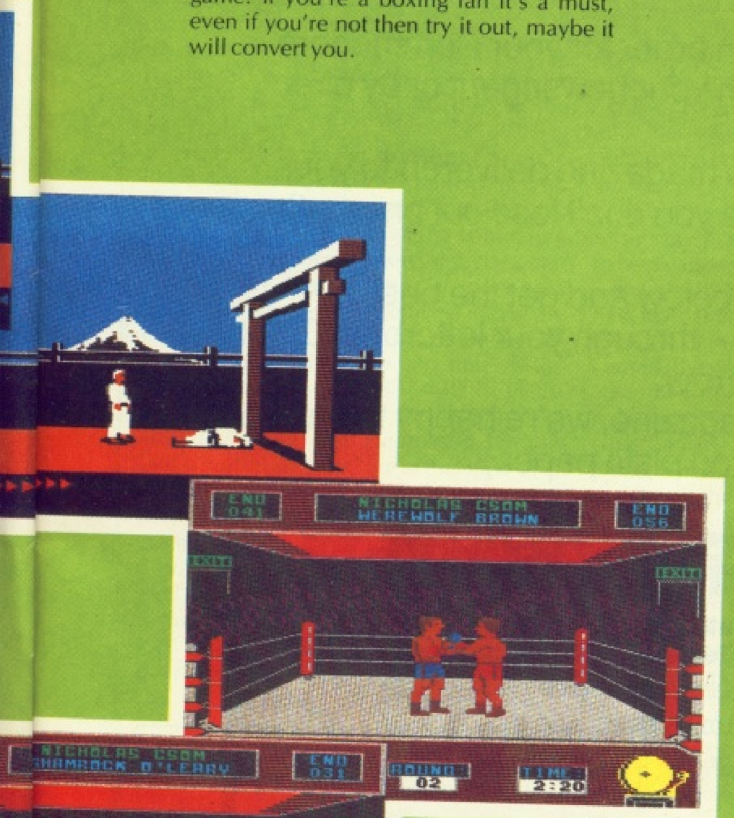
The fight then begins! Both men are well defined, although the crowd leaves a little to be desired, and the movement and realism of the punches if good. The wide variety of punches, such as cross, jab and hook, allows you to spend a lot of the time trying to trick your opponent, but missed punches knock points off your all important stamina, so be warned!

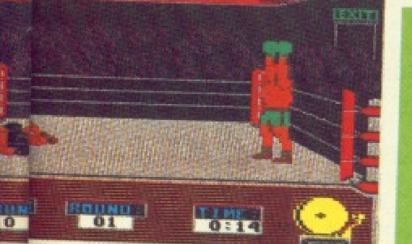
Generally you start a bout with roughly the same stamina as your opponent, and only through a combination of sturdy defence and lighting fast reflexes are you likely to progress much further than 15th in the table.

If your stamina reaches ten or less, you must be very careful, as one good punch and you'll be knocked over, though not necessarily out.

Some of the nicest touches in this game come during and after the actual fight; catchy jingles and flash guns from the crowd when someone gets knocked out all add up to make this a very good package.

I haven't made it to world champion, yet!!, but that won't stop me playing the game. If you're a boxing fan it's a must, even if you're not then try it out, maybe it will convert you.





Fast Loader: Yes.
Graphics: ****
Sound: ***
Playability: ****
CCI Rating: ****
Contact: Activision UK Ltd, 15 Harley House, Marylebone Road, London NW1 5HE. Tel: 01-935 1428.

GOODBYTE

CBM SPECIAL OFFERS WHILE STOCKS LAST

GAME	RRP	OUR PRICE
DEATHSTAR INTERCEPTOR	9.95	4.99
HARD HAT MACK	9.95	6.99
ONE ON ONE	9.95	6.99
LODE RUNNER	9.95	6.99
CHOPLIFTER	9.95	6.99
HUNCHBACK II	9.95	6.99
DAVID'S MIDNIGHT MAGIC	9.95	6.99
JET SET WILLY II	8.95	5.99
CBM. ENGLISH LANG	9.95	4.00

COMMORORE

GAME	RRP	OUR PRICE
BLACKWYCHE	9.95	7.50
SUPER ZAXXON	9.85	7.50
SPY V SPY II	9.95	7.50
SPEED KING	9.95	7.50
MERCENARY	9.95	7.50
NODES OF YESOD	9.95	7.50
KARATEKA	9.95	7.95
DR. CREEP	9.95	7.95
STEALTH	9.95	7.95
PINBALL CNSTRCTN SET	14.95	11.95
ADVENTURE CNSTRCTN SET	14.95	11.95
WIZARDRY	9.95	7.50
MONTY ON THE RUN	7.95	5.95
TERRORMOLINOS	7.95	5.95
RACING DESTRUCTION SET	14.95	11.95
SEVEN SEAS OF GOLD	14.95	11.95
MUSIC CONSTRUCTION SET	14.95	11.95
ROBIN OF SHERWOOD	9.95	7.50
WORLD CUP II	7.95	5.95
CYLU	2.50	1.75
SABREWOLF	9.95	7.50
RED MOON	6.95	5.25
PARADROID	7.95	5.95
CODE NAME MAT II	7.95	5.95
SUMMER GAMES II	8.95	6.75
BEACH HEAD II	9.95	7.50
KENNEDYS APPROACH	9.95	7.50
WHIRLINURDS	9.95	7.50
DOUGHBOY	9.95	7.50
UNDERWORLDE	9.95	7.50
WIZARDS LAIR	8.95	6.75
NOW GAMES	8.95	7.50
THE BULGE	9.99	7.50
NICK FALDO'S GOLF	9.99	7.50
FRANK BRUNO'S BOXING	7.95	5.95

GAME	RRP	OUR PRICE
FRANKIE G. T. HOLLYWOOD	9.95	7.50
FIVE-A-SIDE	5.95	4.75
INTERNATIONAL KARATE	6.50	5.00
RED ARROWS	8.95	6.75
THING ON A SPRING	7.95	5.95
WAY OF EXPLODING FIST	9.95	7.50
ELITE	14.95	11.00
GRAHAM GOOCH'S CRICKET	9.95	7.50
HYPERSPORTS	8.95	6.50
THEATRE EUROPE	9.95	7.50
BRIAN JACKS SUPERSTARS	**7.95**	**4.99**
COMBAT LYNX	8.95	6.50
EVERYONE'S A WALLY	9.95	7.50
HERBERT'S DUMMY RUN	9.95	7.50
TIR-NA-NOG	9.95	7.50
MINI OFFICE	5.95	4.75
ROCKY HORROR SHOW	8.95	6.50
AXZIMUTH 3000	8.95	6.50
SLAPSHOT	8.95	6.50
SHADOW FIRE	9.95	7.50
SHADQW FIRE (disc)	13.95	9.75
WORLD SERIES BASEBALL	7.95	5.95
CAULDRON	7.99	5.99
ELIDON,	8.95	6.50
ROCKFORD'S RIOT	9.95	7.50

C-16

GAME	RRP	OUR PRICE
WORLD CUP	6.95	5.25
HUSTLER	6.99	5.25
SWORDS OF DESTINY	6.95	5.25
GREMLINS	7.95	5.95
SLIPPERY SID	6.95	5.25
PETALS OF DOOM	6.95	5.25
XARGON WARS	6.95	5.25
TYCOON TEX	6.95	5.25
DARK TOWER	6.95	5.25
CLASIC ADV	6.95	5.25

SPECIAL OFFER QUICKSHOT II £6.99

ALL PRICES INCLUDE P&P

PLEASE NOTE IF OUR ORDER EXCEEDS £50
YOU GET 10% FURTHER DISCOUNT

SEND CHEQUES/P.O. TO
GOODBYTE CCI11
UNITS 10/11 IMPERIAL STUDIOS
IMPERIAL ROAD, LONDON SW6
(TEL: 01-731 4555)

CHROMASONIC
Computer Centres
48 Junction Road, Archway, London N19 5RD
238 Muswell Hill Broadway, London N103SH

PHONE
01-263 9493/5 or 01-883 3705

C128 and 1551 disk drive package £445

1570 Disk Drive appx18 times faster than 1541	£199.99
C128 Three Modes in one Computer	£269.00

64 GOODIES

64 plus 1541 package price	£299.99
64 Starter pack (including C2N, Quickshot II joystick, International soccer cartridge,)	£199.99
Buy 1541 and get MPS 801 printer FREE	£199.99

FREE MODEM this is a limited offer available when you buy a 64 or disk drive or commodore printer

64 professional system price (includes 1541, MPS801, C2N, Easyscript, Future Finance, international soccer, quickshot II joystick 10 Disks, Box of paper)	£498.00
DPS1101 Daiseywheel Printer	£199.99
Epson LX80 Near Letter Quality printer	£293.00
Comprint Interface	£61.99

COMMODORE 64 GUARANTEED FOR 2 YEARS
Write or phone for our latest catalogue

TERMS
Payment by Access, Visa, Bankers Draft, Building Society cheque, Sorry Cheques take 5 days to clear. We reserve the right to alter prices without prior notice Please check for carriage charges before ording. All prices EXCLUDE VAT instant credit up to £1000 & budget account available

Don't miss out!

With the growing popularity of Commodore Computing International Magazine, newsagents and bookstalls sell out quickly. More and more frustrated readers wanting the one magazine every Commodore owner needs are finding they are missing out and some months having to do without the latest news, reviews and vital feature articles and programs.

The popular solution is to place an order for your Commodore Computing International Magazine with your newsagent or by direct subscription to us.

A subscription means you get the magazine delivered to your door. It saves you time and makes sure you don't lose out on what's happening in the Commodore world.

Send in the subscription coupon below and get the best Commodore magazine the easy way — through your letterbox. Don't miss out on the best, mail the coupon **now**.

(If you don't want to cut up the magazine, we're happy to have a photocopy of the coupon or a request on plain paper.)

Commodore — Subscription Order Form

To Subscriptions Manager, Commodore Computing International,
40 Bowling Green Lane, London EC1R 0NE. Tel: 01-278 0333 Telex: 267247 FINSEC

Please send me 12 issues of *Commodore Computing International*

☐ Cheque enclosed

☐ Please debit my Access

Card No. ☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐

☐ Subscription rate U.K. £15.00
☐ Europe £20.00
☐ Outside Europe £28.50

Expiry date: __________

Cheques should be made payable to:
CROFTWARD LIMITED

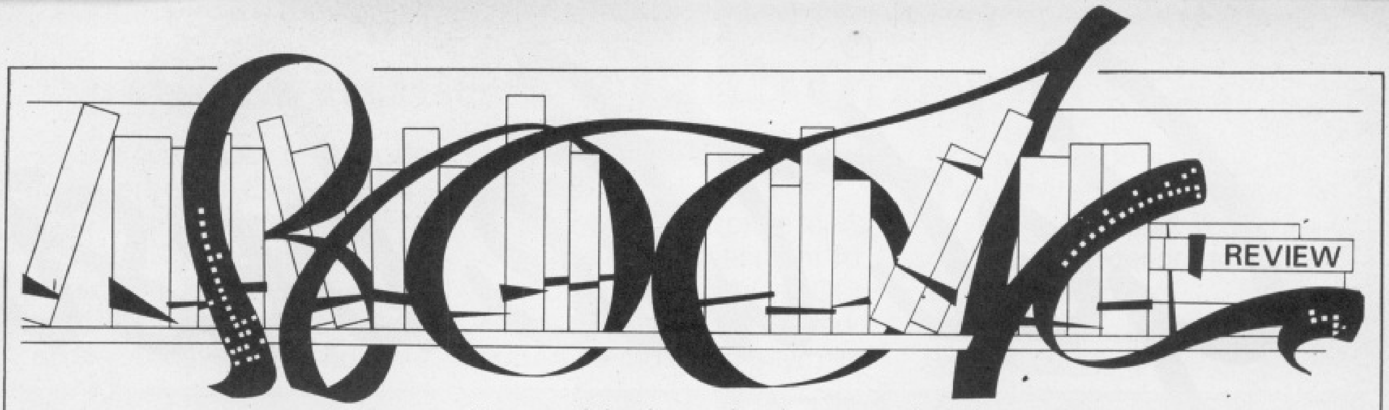
Name __________

Address __________

County __________ Post Code __________

Telephone (home) __________ (business) __________

Signed __________ Date (Subscription to commence) __________



Bill Donald takes a look at new books including the elusive C16 and Plus/4 Programmer's Guide.

C16 AND PLUS/4 PROGRAMMERS GUIDE— £9

The PLUS/4 and C16 are the two machines that will go down in the annals of Commodore's history as the two greatest commercial failures of the 1980's. Personally I feel that such a judgment on the PLUS/4 itself is perhaps a little harsh, even the erstwhile Jim Butterfield is on record as stating that the PLUS/4 is an under-rated machine. I cannot help but agree with him, having purchased one at a far more sensible price than the £300.00 at which Commodore first launched the PLUS/4. It would seem that the PLUS/4 failed commercially not because of it's inherent abilities but because some idiot at Commodore managed to convince those who make such decisions that the machine was marketable at £300, I assume that it is his brother who works for Acorn where similar thinking prevails on the pricing for the BBC+!

The C128 looks set to overshadow the PLUS/4 and it would be a foolish man who speculates on the future of the PLUS/4, which is a pity. Another of the continuing reasons for lack of commercial success can be seen in the amount of published material on these two machines. Part of the reason for this is due to the reluctance of Commodore to produce and publish the equivalent of the PROGRAMMERS REFERENCE GUIDE series for the machines. I would imagine that the reason for this being that the architecture of the 8501 CPU and 8360 video chip on the PLUS/4 bear more than a passing resemblence to the contents of the C128 in the shape of the 8502 CPU, etc. Such revelations on the PLUS/4 CPU could thus be construed as giving too much information to competitors. How Commodore have attempted to overcome this is in two ways. First, they have not published the availability of the guide and secondly it is only available from Commodore direct.

The book itself is nothing more than a ring-binder and appears to be solely the work of Commodore UK. The pages are typewritten and photocopied and it runs to about 120 pages. It is divided into two main sections with the obligatory padding in the form of screen codes, ASCII codes and the mathematical functions. The first section deals with the BASIC language of the machine and it is nothing more than an expansion on what Commodore published in the machine's User Guide. I failed to pick up anything new and therefore of significance. The second section deals with machine code programming and whilst it is new material as far as Commodore themselves are concerned, again I found the same sorry tale. The KERNAL jump table of the PLUS/4 is located at the same addresses and operates in almost the same way as the C64 KERNAL, so nothing to be gleaned there.

In fact, apart from a memory map which had several gaps in many places, and the circuit diagrams of the machines concerned, the whole thing suggested a rushed 'give-them-something-to-keep-them-quiet' approach. This is borne out by the title which misses out the telling word *REFERENCE*. There are no pinouts of the ports, details of the video processor registers, hardware data, in short Commodore have, in exchange for your £9 presented you with a nice ring binder and little else!

It may well be that they have something else up their corporate sleeve, but for the moment, with miserable efforts like this it is not surprising that the PLUS/4 is not succeeding. I have been accused in the past for criticising Commodore too harshly for some of their antics. It would seem on this occassion I cannot, but do anything else. For an international company with the stature of Commodore to produce a worthless insult to our intelligence is, regretably, becoming all to often the norm. Commodore is capable of giving us what we need in the way of detailed, comprehensible documentation — look at the C64 PROGRAMMERS REFERENCE GUIDE. One reason propelled at me for this failure on the documentation side of their business is a shortage of technical author personnel. I am sorry but I do not accept this as a valid excuse; we pay good money, not necessarily at the level which Commodore would wish, for hardware and have a right to expect a high standard of support in the form of solid documentation. I cannot believe, that given Nick Bessey's background with IBM, anything would allow him to think otherwise, and it has astonished me to believe that he sanctioned the release of this. The fact tht we have to pay for it merely rubs salt into an already festering wound.

I sincerely hope, nay expect, that the succession of foul-ups is stopped with the launch of the C128 and that adequate documentation beyond the level of the USERS GUIDE is made available quickly. I do not think it is a case of Commodore running out of time, more accurately, that particular datum point was *passed* some time ago.

I cannot recommend this 'book' at the price that the publisher requests for it.

Contact: Commodore (UK), 1 Hunters Lane, Weldon, Corby, N. Hants NN17 1QX. Tel: 0536 205555.

CP/M BIBLE by M Waite & J Angermyer — £19.95

A rather ambitious title for a book on the well-known and documented operating system which has been resurrected by the AMSTRAD 664, the C64 and latterly, the C128. With a title like that, how did it stand up? My answer is yes, this book claims to be an authoritive reference guide to CP/M and to that end it succeeds.

The strength of the book lies in two facets. The first, being the very high standard of page layout and typesetting. The overall impression is one of clinical efficiency; an excellent index and comprehensive glossary make this book easy to read and more importantly *locate* the required information. Secondly the portrayal of the information is aided by the copious use of examples. CP/M is infamous for its lack of the much hackneyed phrase user friendliness and mistakes at the keyboard are punished by, at the very least, incomprehensible screen messages, at the worst, by system crashes which will mangle any data on the program disk. I must admit that the user's learning curve tends to be admirably short with CP/M, you computer literacy is measured in direct proportion to the number of unusable, crashed disks which accumulate in your library box.

Most users of CP/M machines will tend to bypass the operating environment altogether, and after booting-up the system

Get the best

THE TOUCHMASTER GRAPHIC TABLET

From sophisticated graphics tool for design work to a simple user-friendly interface to the computer. The Graphic Tablet is a pressure-sensitive device which is operated by any applied pressure, using a stylus, pen or pencil. It gives you a large working area, high resolution, accuracy, robustness and is very easy to use.
RRP £119.95

SPECIAL READERS CLUB OFFER PRICE
£95.96 (incl. VAT + p&p)

A REVOLUTIONARY GRAPHICS TABLET

QUICK DATA DRIVE by Dean Electronics

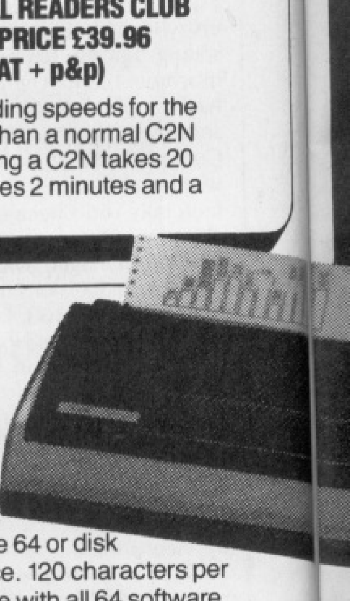
QUICK DATA DRIVE

Super Fast

RRP £49.95
SPECIAL READERS CLUB OFFER PRICE £39.96 (incl. VAT + p&p)

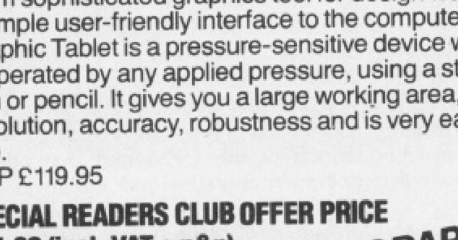
The Quick Data Drive offers loading speeds for the Commodore 64 15 times faster than a normal C2N cassette player. To load 64K using a C2N takes 20 minutes, a Commodore disc takes 2 minutes and a quick data drive 30 seconds.

star SG10C



Near letter quality printer for the Commodore 64. Plugs straight into the 64 or disk drive — cables are included in the price. 120 characters per second in draft mode. Fully compatible with all 64 software and graphics codes.
Supplied by Datastar Systems (U.K.) Ltd.
RRP £307.85
Special Readers Club Offer Price £246.28 (incl. VAT and next day doorstep delivery.)

EXCELLENT QUALITY * EXCELLENT VALUE



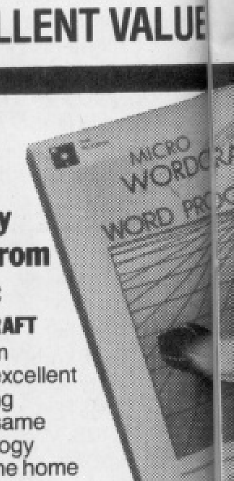
ONLY AVAILABLE UNTIL OCT 31ST

64K RAMBOARD for the C16 by MCT

Easily fitted internally, allowing the cartridge port to remain free for other uses. Automatically provides you with access to 60671 bytes free to BASIC. Totally compatible with the existing C16 plus the additional software on the Plus 4 computer.
RRP £49.95

SPECIAL READERS CLUB OFFER £39.96 (incl. VAT + p&p)

3! High quality packages from Audiogenic



MICRO WORDCRAFT
Developed from Wordcraft the excellent word processing program. The same level of technology packaged for the home or small business.
RRP £24.95 Special Readers offer price £19.96 (incl. VAT + p&p) – cass. or disk

MICRO MAGPIE is probably the most advanced database management system for any home micro.

Special Readers Club Offer

We are proud to be able to offer members of the CCI Readers Club some outstanding products. The prices here are about 20% less than you could buy the same products in the shops. All have been chosen for their popularity, reliability and high quality.

Send your order at once to avoid the end of year rush! To become a member of the CCI Readers Club, you simply add 50p for membership payment for any package you buy. *You make only one membership payment until 1986. You have no further obligations to buy any other product.*

Next month . . . some more exciting offers. !!!

from your Commodore

VIDEODIGITIZER MODULE FOR C64 and C128 BY PRINT TECHNIK

The Video-Digitizer module gives you the possibility to digitize video signals of whatever kind, to show them on the screen, to store or to process them and to print them out.

The applications of the the digitizer are unlimited. From a design point of view — digitized pictures can be used as graphics, their colours can be enlarged and printed out. You can even take a picture through a microscope, digitize it and with a special program count the number of blood cells or bacteria! The digitizer can be connected to any video-camera. Whichever way you use it you're bound to be pleased with the results.

RRP £156.00
Special Readers Club offer price £124.80 (incl. VAT + p&p)

THE DIGITIZER EVERYBODY'S TALKING ABOUT

COMPRINT CIRCUIT BOARDS FOR EPSON AND KAGA TAXAN/ CANON PRINTERS

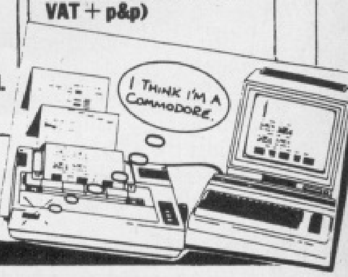
Solve incompatibility problems of these printers with the Commodore 64. Just plug the Comprint Circuit board inside the Epson or Kaga Taxan/ Canon printer, connect the cable supplied to the Serial I/O port on the Commodore and Hey Presto! The Comprint fools the Commodore into thinking it's working with a Commodore printer. All the features are there — total emulation and depending on the model provides a 2K or an 8K printer buffer as well.

MCS — 8KCC
(8K CANON/TAXAN COMPRINT)
RRP £81.65
Special Readers Club offer price £65.32 (incl. VAT + p&p)

MCS — 2KXC
(2K STAND ALONE COMPRINT — EPSON BOARD WITH POWER SUPPLY)
RRP £103.44
Special Readers Club offer price £82.75 (incl. VAT + p&p)

MCS — 2KEC
(2K EPSON COMPRINT)
RRP £63.15
Special Readers Club offer price £50.52 (incl. VAT + p&p)

MCS — 2KCC
(2K CANON/KAGA TAXAN COMPRINT)
RRP £63.15
Special Readers Club offer price £50.52 (incl. VAT + p&p)


I THINK I'M A COMMODORE.

MAGIC!

micro magpie
DATABASE
Micro Swift
SPREADSHEET
WORDCRAFT
PROCES

RRP £34.95 Special Readers Club offer price £27.96 (incl. VAT + p&p) – Disk only

MICRO SWIFT is the affordable professional spreadsheet system for the Commodore 64. Indispensable. Very easy to use.

RRP £24.95 Special Readers offer price £19.96 (incl. VAT + p&p) – cass. or disk

EXCEPTIONAL PERFORMANCE

To: Commodore Computing International, Finsbury Business Centre,
40 Bowling Green Lane, London EC1R 0NE.

I wish to join the CCI Readers Club. I enclose 50p membership ☐
I am already a member ☐

☐ Touchmaster Graphic Tablet £95.96 (incl. p&p)
☐ 64K Ramboard for the C16 £39.96 (incl. p&p)
☐ Quick Data Drive £39.96 (incl. p&p)
☐ Star SG10C Printer £246.28 (incl. delivery)
☐ Video Digitizer £124.80 (incl. p&p)
☐ MCS-2KEC (2K EPSON COMPRINT) £50.52 (incl. p&p)
☐ MCS-2KCC (2K CANON/TAXAN COMPRINT) £50.52 (incl. p&p)
☐ MCS-8KCC (8K CANON/TAXAN COMPRINT) £65.32 (incl. p&p)
☐ MCS-2KXC (2 STAND ALONE COMPRINT) £82.75 (incl. p&p)
☐ Micro Wordcraft WORD PROCESSOR £19.96 (incl. p&p) ☐ cass. ☐ disk
☐ Micro Swift SPREADSHEET £19.96 (incl. p&p) ☐ cass. ☐ disk
☐ Micro Magpie DATABASE disk £27.96 (incl. p&p)

I enclose for £ ______ for payment in full

☐ Cheque ☐ Postal Order ☐ Access No. ☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐
Cheques should be made payable to:
CROFTWARD LIMITED. Allow 28 days for delivery

Name (BLOCK CAPITALS PLEASE) ______________________

Address ______________________

disk will then plough on into the applications program. In some respects this is very likely to be a good thing, but having a ramble around in CP/M can be worthwhile and rewarding. It is analogous to driving along the motorways and being totally oblivious to the countryside passing by, or alternatively entering the CP/M minor roads and having the opportunity to observe everything. However, the beauty of nature is deceptive; moreover it can be a case of "whatever it is I'm glad I didn't step in it" when the horrendous CP/M error messages appear on the monitor.

Probably the most critisied section of CP/M is ED. For new users ED represents intimidation with a capital I. It's not that the commands are difficult to learn since they are two key operation, but the editor is a line-editor. This means goodbye to powering the cursor all over the screen to the line of the text where the mistake has occured by using the cursor control keys; to control the cursor, ED demands more manipulation of the keyboard in terms of pressing the CTRL key and then a letter key to position, erase or format the text. At the very least ED is messy, at worst it is the source of a great deal of bad language. The only personal tip I can give if you are using ED is to save the file frequently thus avoiding the loss of work should you make a mistake (very likely!) during the use of ED. This book covers the finer points of using ED with clear and excellent use of graphics to illustrate the various convolutions. It is certainly the best I have seen to date and certainly brought some light into my darkness of ED.

The other utilities of CP/M are given equal coverage, although I would have liked to have seen more on PIP. Argueably, PIP is the most powerful program on the system disk and really deserves a book in it's own right. I have often thought that PIP has served as the starting point of many programmer's disk copying routines. Some of the more out of the way utilities such as SUB and XSUB are revealed, not that most of us will have much use for them, but it was nice to see them included.

Chapter 21 includes an overview of CP/M version 3.0, or CP/M PLUS as it is sometimes called. This is the version which appears on the C128 (and Amstrad 128K machine) and contains a number of enhancements to version 2.2, the more common variety of CP/M. The three most visible aspects to the user of version 3.0 are a larger TPA or transient program area, a larger selection of utilities and the addition to the monitor prompt of the user number. Perhaps with the re-emergence of CP/M this book will be revised and updated, although the particular edition that I own is dated 1983, so in computer chronological terms it is quite old.

The extensive appendices of the book include details of optional CP/M utilities, CP/M compatible languages and CP/M-related operating systems.

This book accomplishes and surpasses it's objective of providing a reference source for users of CP/M. It contains over 420 pages and should really be supplied with any CP/M machine rather than the very poor substitutes foisted on us by the manufacturer of the machine. Highly recommended.

Contact: Howard W Sams, 128 Long Acre, London WC2E 9AN. Tel: 01-379 7383.

SOUL OF CP/M by M Waite & R Lafare — £19.95

I have seen a number of books which profess to be programming guides to CP/M and whilst some may approach the objective, none of them actually achieve it. The major flaw in them seems to be an assumption that the programmer is conversant with the 8080 processor. The reason for this appears to be based on the fact that the users will be availing themselves of DDT, the resident CP/M monitor, which will only operate in 8080 code, even if it is running on a Z80 processor. Now the 8080 never made the big time in the way that the Z80 and 6502 did, and although I do not accept that the 8080 (and the 6809 or TI9900-series processors) were poor devices and hence the reason for their commercial failures when measured against the 6502 or Z80, but the 8080 is another route into learning the difficult Z80, the undisputed king of the 8-bit processor.

This book not only covers the operation of CP/M at source code level, but acts as a tutorial on 8080 machine code. In common with it's companion volume CP/M BIBLE, great use is made of graphic diagrams to explain a difficult point. In addition to the high standard set by it's companion in terms of typography, the overall flavour of this book is quality and value for money.

During the course of just under 400 pages, the authors take us into how CP/M is organised in machine memory and on the disk. We are then taken on a journey through the various console calls through the medium of short (less than 30 lines) programs entered by DDT to illustrate the effects. Similtaneously, whenever a new 8080 op-code is brought into the program, graphic diagrams clearly explain the use of the new op-code.

It is about half way through the book when the authors really start to get down to brass tacks; disk file storage, deleted file recovery and the interface between high level language interpreter and the operating system. The latter concentrates on using BASIC as the resident interpreter which is a pity since the beauty of CP/M lies in the huge number of languages implemented on it.

The real jewel of the book lies in the last chapters which cover direct modification of the BIOS to include whatever peripherals you have hung on to your system configuration. I would have liked to have seen this topic given more coverage, since most machines run CP/M in RAM and hence the ease of user-defined system modifications.

The appendices contain several useful utilities, most of which work on my C64 when it is running CP/M. I found Appendix E to be the best as it contains a summary in table form of CP/M 2.2 BDOS calls. I can best explain this as an equivalent of the Commodore KERNAL jump table.

I found this book to be invaluable in learning 8080 code as well as gaining an insight into CP/M. It is not a book for beginners of those who are new to CP/M, it is more pitched at the intermediate level of user knowledge. A very useful book which should be part of any serious programmer's library.

Contact: Howard W Sams, 128 Long Acre, London WC2E 9AN. Tel: 01-379 7383.

THE WORKING C16 by David Lawrence — £6.95

This is the direct descendant of The Working Commodore 64 by the same author and it will make a useful addition to every C16 owner's library.

Thankfully it's not a book of long programs to be keyed in although there are some useful programs included. The subtitle 'Essential routines and applications' just about sums it up.

The book is really a tutorial and is intended to teach the reader about programming as well as about the C16 itself. Like The Working Commodore 64 it succeeds. But it's not necessarily a book only for beginners. Chapter 4, which is rather unfortunately headed 'Seriouser and Seriouser', contains some serious applications after three chapters which offer fun with sound and graphics. There are programs for simple word processing and database management.

It's a modest work rather than a great masterpiece and, in that respect, is a fitting companion for the C16.

Contact: Sunshine Books, 12-13 Little Newport Street, London WC2H 7PP. Tel: 01-437 4343.

Maybe it's fun to you – but it's £6 an hour to your wife!

The Computer that's been giving you such a fine time with computer games is now ready to earn you some real money. Helping you to run your own business or giving your wife the chance to earn £6 or more an hour for word processing/secretarial work.

All because of the brilliant new word processing package, SuperScript from MicroPro – the makers of Wordstar – the world's best selling word processing packages for microcomputers.

Now open for business

SuperScript **writes letters, invoices, reports, tables, documents, it stores, edits and even checks spelling.**

Versatile SuperScript SuperScript combines word processor, spelling checker, calculator and mail-merge facility, all in one package. So SuperScript gives you all the tools you need to produce high quality reports, tables, lists, personalised letters and prints labels quickly and efficiently.

Simple for the beginner If you are a newcomer to word processing, SuperScript puts you immediately at ease.
Each command is a single word, and for each command you simply move the cursor. You don't even have to type the command.

Good with numbers SuperScript allows you to extend your editing line up to 250 columns for wide documents like financial statements, and with decimal tabs it's easy to enter properly justified tables of numbers.
SuperScript's complete set of calculator functions can be used interactively or you can operate on numbers from the text of your document. Apart from the usual mathematical functions like add, subtract, multiply, divide, and percentages, you have the ability to add rows, columns or even whole tables.

Good with spelling, too The build-in spelling checker goes right through your text, checking for errors. You have the option to correct any error, ignore it, or add the word to its 30,000 word dictionary.

Editing options SuperScript gives you all the editing options of a business-style word processor, with full block manipulation for cut-and-paste; overtype or text insertion modes; search and replace with pattern matching and optional case discrimination; backward search, case shifts for single words or larger blocks of text. And much more.

Powerful for the experienced user SuperScript also gives you the ability to cut work down to a minimum by storing your own command sequences or text on single keys. This means that with a single keystroke you can reproduce commonly used phrases or multi-line addresses from a glossary, load in document formats or execute a pre-programmed sequence of operations.

Mailings with SuperScript Personalised mailings are easy with SuperScript. You can enter the data manually or use data extracted from your spreadsheet or database. Merging can be selective. A mailing labels template is included to help you complete your mailing and you can alter the template to suit your own label format.

Attention Easy Script users! If you're already an Easy Script user, then SuperScript is the obvious next step. With its enhanced features and more powerful facilities, you'll be able to do so much more. There are no compatibility problems either. You can run your Easy Script data or Easy Spell dictionary disks under SuperScript. And by returning your Easy Script disk can obtain an upgrade for ust £49.95.

AVAILABLE FOR
COMMODORE 64, 128
ATARI 800XL, 130XE · APPLE IIc, IIe
SuperScript Word Processing Software is available direct complete with Comprehensive User Manual. Only £79.95 including VAT and Postage.
OR FROM ALL GOOD DEALERS.

NEW *SuperScript* WORD PROCESSING PACKAGE

MicroPro
SuperScript
MicroPro
DISK SOFTWARE
SuperScript
FROM THE MAKERS OF WORDSTAR
SOPHISTICATED AND POWERFUL WORD PROCESSING
MicroPro

MicroPro International Ltd
Haygarth House, 28-31 High Street, Wimbledon Village,
London SW19 5BY

ORDER BY PHONE

ASK YOUR LOCAL DEALER FOR THE SUPERSCRIPT PACKAGE, OR ORDER DIRECT BY PHONING
0483 503121
QUOTING YOUR CREDIT CARD NUMBER OR BY COMPLETING AND RETURNING THE ORDER FORM WITH YOUR CREDIT CARD DETAILS OR REMITTANCE

SuperScript ORDER FORM

To Dept CC1, CUMANA Ltd, Pines Trading Estate, Broad Street, Guildford, Surrey GU3 3BH

Please supply the following:

QTY ☐ SuperScript £79.95 (includes P&P) for*__________ computer

QTY ☐ †Upgrade for Easy Script £49.95 (includes P&P) for*__________ computer
†(Your existing Easy Script disk should be returned with this order.)
*Commodore 64, 128. Atari 800XL, 130XE. Apple IIc, IIe

I enclose remittance for £________ (Cheques made payable to CUMANA Ltd). Or charge my credit card

Access/Visa No. ☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐ Signature __________

Name__________
(BLOCK CAPS)
Address__________
__________ Postcode__________

If you are intending to use SuperScript for a specific purpose, we should be interested to have details. Thank You__________

THE WIZARD AND THE PRINCESS

As adventure games go, this is a pretty old one, first released on the Apple nearly three years ago in America, this 64 version appears to have deviated very little from the original.

The game involves, as its name suggests, a quest in which you must rescue the poor innocent gorgeous princess who has been taken prisoner by a wicked Wizard.

Although only a two word input adventure, which in these days seems pretty backward, it manages to test your powers of perception surprisingly well. The first thing you must do on loading the game is to work out a way of leaving the village of Serenia without getting either confronted by a snake or lost in the desert (I managed to do both for nearly an hour!!).

Having started to get into the game I found that unlike some people who only saw the game briefly, and therefore didn't like it, I enjoyed having to think before putting my foot in it. One criticism is the lack of any real vocabulary clues, unfortunately it really does get a little tiresome when you have to try thirty words to try and achieve a pretty simple action.

Overall I think this is not an adventure to learn on, although the graphics are really pretty at times, rather one for the experienced adventurer who enjoys thinking about what to do, before he does it.

Fast Loader: Disk
Graphics: ***
Sound: N/A
Playability: ***
CCI Rating: ***
Price: £12.95 Disk
Contact: All American Adventures, Unit 10, The Parkway Industrial Centre, Heneage Street, Birmingham B7 4LY. Tel: 021-359 3020.

ROBIN OF SHERWOOD

Adventure International's latest game, entitled Robin of Sherwood and subtitled 'The Touchstones of Rhiannon,' is based on the highly popular television series starring the much idolised Michael Praed.

Perhaps not surprisingly you play the role of our hero Robin. Your quest is to first escape from the castle, then having joined your band of merry men, re-enter the castle and presumably rescue your loved one.

In a market where adventurers are generally accepted as being experienced, it was unsurprising to find that even getting started is bloody difficult, and it took me quite a while to find out how to get out of the dungeon.

Having achieved that you must travel around the castle, conversing with whom you deem it necessary (Marions a pretty good start!!), and then you must work out a way to escape from the castle without being caught by the guards.

The speed of response of this game is of their usual high standard, although some of the 'how do I do that' type of answers do get on my nerves.

There is, not surprisingly, no sound but a lot of care has been taken over the graphics, and it shows. Some of the later screens are really beautiful.

Overall Robin is a really good adventure game, and thankfully it comes with a hint sheet, useful for morons like me. If you're looking for a good and long adventure you can't go far wrong with this one.

Fast Loader: Yes
Graphics: ****
Sound: N/A
Playability: ***
CCI Rating: ****
Price: £9.95
Contact: Adventure International, 85 New Summer Street, Birmingham B19 3TE. Tel: 021-359 0801.

DOUGHBOY

Doughboy is the latest release from US Gold, and was originally released in the States by Synsoft, producers of such classics as Zaxxon and Fort Apocalypse.

It is based on trench warfare, with you having to traverse a battlefield, collecting such supplies as wire-cutters, TNT, ladders and others to aid you in the quest to get further and further into the quest.

What makes it a little tricky (to say the least) are the enemy!! There are varying amounts of enemy troops who are equipped with guns and are annoyingly accurate.

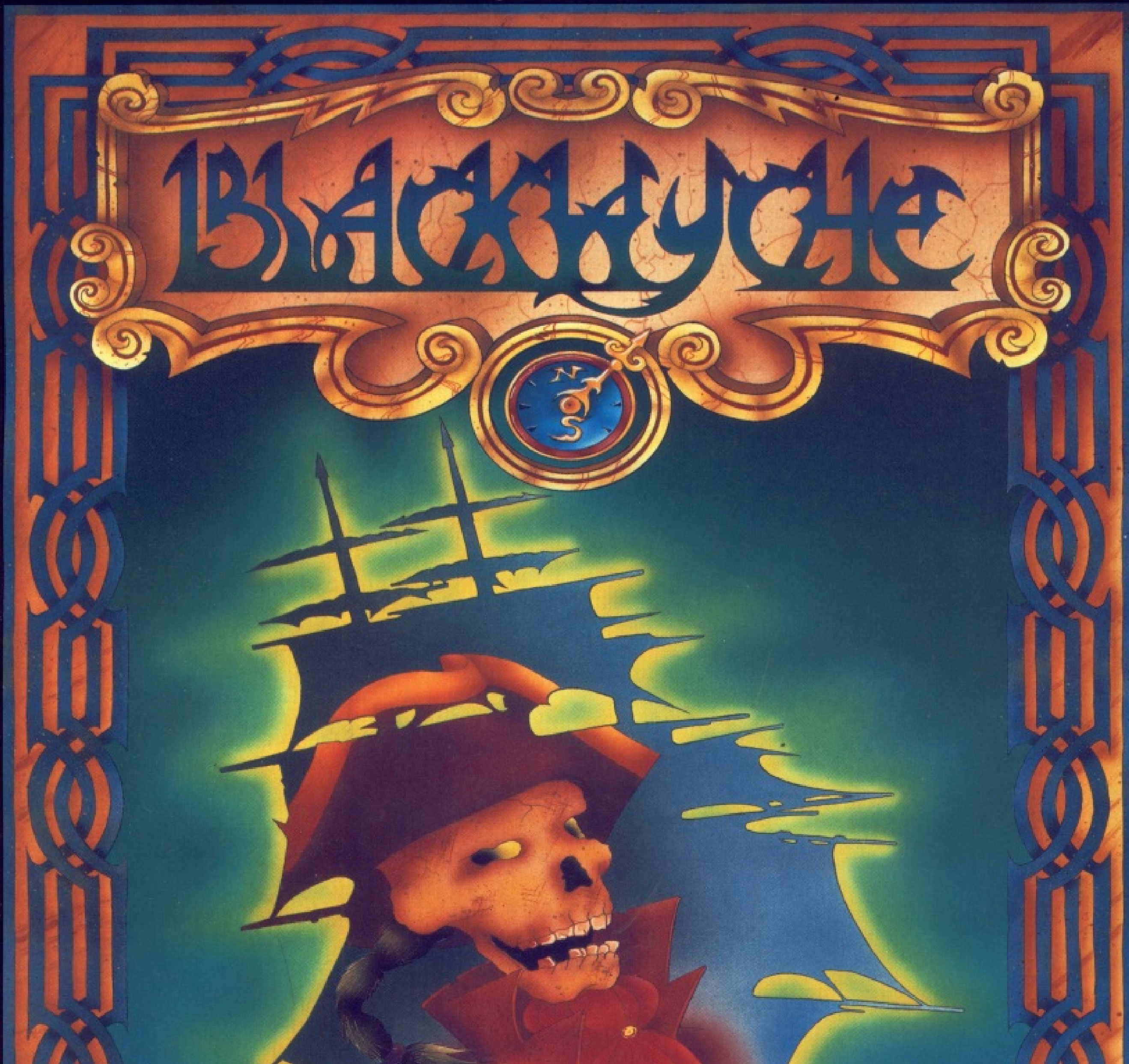
The best policy I found was to sprint from trench to trench, shooting wildly as you go, and trying to collect whatever items happen to be nearby at the time. This may sound easy, but even on the beginners level you must also cope with mortars, which are fast and home in on you!!, even when you're in a trench.

The first level, although not easy, is, with a little practice possible, the second however is much more tricky. You must go from island to island until you reach the other side. If this sounds simple you should take into account that you must make your own bridges by blowing up radar turrets, and to do this you must use your TNT, which is deadly to you unless used correctly.

All in all Doughboy is a really addictive game, neither the graphics or the sound are so special as to justify it's purchase, but the playability of the game is enough to keep you happy for quite a while!!

Fast Loader: Novaload
Graphics: ***
Sound: ***
Playability: ****
CCI Rating: ***
Price: £9.95
Contact: US Gold, Unit 10, Parkway Industrial Centre, Heneage Street, Birmingham B7 4LY. Tel: 021-359 3020.

COMMODORE 64



BLACKWYCHE
N
S
ULTIMATE
PLAY THE GAME

"BLACKWYCHE" recommended retail price £9.95 inc VAT.
Available from W.H.SMITHS, BOOTS, J.MENZIES, WOOLWORTHS
and all good software retail outlets. Also available from
ULTIMATE PLAY THE GAME, The Green, Ashby-de-la-Zouch, Leicestershire LE6 5JU
(P&P are included) Tel: 0530 411485

SCHIZOFRENIA

Two years ago Schizofrenia would have got a very different review to this. Although there is nothing very wrong with the game, in a world where ten pounds buys you the graphical brilliance of Summer Games II, or the originality of Racing Destruction Set; it is hard to look at Schizofrenia without first saying that, apart from the title, it has little that has not already been done.

The basic scenario of the game is that you, Alphonso T. Nurd, are a lab assistant who – wait for it – messed around with the equipment while your boss was away.

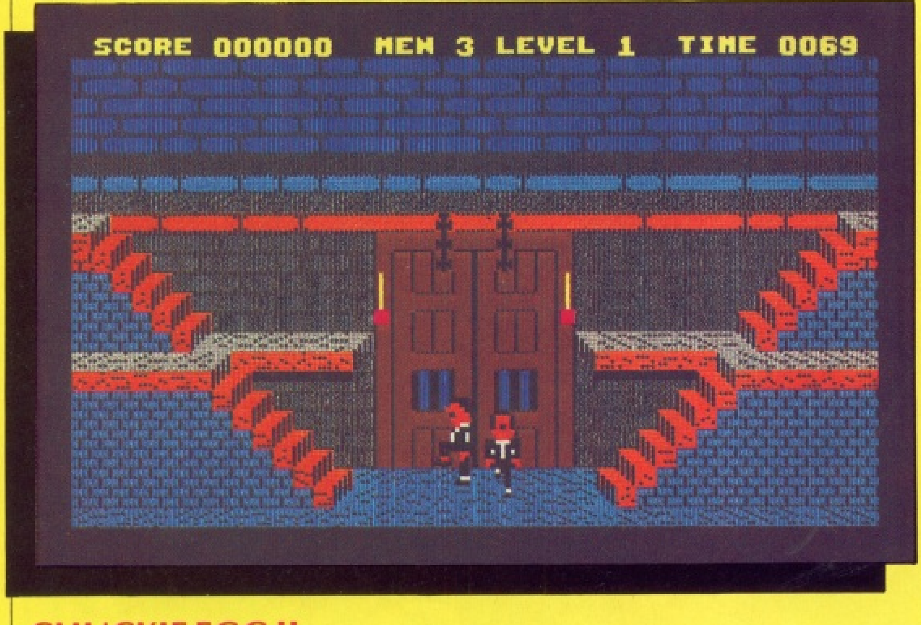
Whilst fooling around you managed to find the Atomic Particle Separator, which split you into two people. The aim of the game is to go through all of the five rooms keeping your alter ego at bay, until you can get to the Recombination Chamber.

The actual game play is at fault for many of the games problems, for, it is so annoying that it makes you want to turn the machine off – rather than play another game!

Both the graphics and sound are reasonable, if a little unspectacular, although the characters John Cleese like walk is very amusing.

Schizofrenia has little to recommend it over any other games, it is by no means bad, but it in a highly competitive field, and one in which it stands no chance of winning.

Fast Loader: Yes
Graphics: ***
Sound: ***
Playability: **
CCI Rating: **
Price: £7.95 cassette
Contact: Quicksilva Ltd, Liberty House, 222 Regent Street, London W1R 7DB. Tel: 01-439 0666.



CHUCKIE EGG II

I was a great fan of the original Chuckie Egg. I was one of those people who sat up until three o'clock in the morning trying to beat his high score of 450,000, and although I never managed to top that, it is one of the few games that I regularly come back to.

Naturally enough then I was eager to review this, the sequal. The scenario is pretty standard arcade-adventure, with our hero, 'Hen House Harry' having to collect parts of toys and ingredients to mix and make chocolate eggs in an egg factory.

For someone who never played the first Chuckie Egg it must be quite difficult to see why people like me spend so much time on it; the graphics are nothing special, the sound is dreadful, and in the new one its not even very easy, but Chuckie Egg is one of the most challenging and addictive games I have ever played.

Chuckie Egg II starts where Chuckie Egg left off, with infuriating jumps, dreadful ropes which involve pin point accuracy, and villains that really do not want to let you pass.

If you get a chance, go into your local software shop, ask to be shown this game and have a good long go. If after 15 minutes you're not totally infuriated, then don't buy it. If you, like me, loved to hate it, take it home, play it, and beat that high score!!! Only don't blame me if you can't get up the next day!

Fast Loader: Yes
Graphics: ***
Sound: ***
Playability: ****
CCI Rating: ****
Price: £7.95 cassette
Contact: A&F Software Ltd, Unit 8, Canal Side Industrial Estate, Woodbine Street East, Rochdale, Lancashire OL16 5LB. Tel: 0706 34111.

GET MUDDING

Hi Boyz!!

As of this month Mack, your roving CCI reporter will be bringing all the up and coming news and gossip from the ever advancing world of Multi-User games.

The first ones to be properly launched are Compunets MUD, now open not only to Commodore users, but to the full spectrum of Computer users. Although this version of MUD has been rather overshadowed by British Telecoms' MUD II, it has now been up and running for quite a while and hence has a regular base of users both advanced and novice.

Athough relatively expensive, Compunet does not only have MUD and hence in many ways provides very good value for money.

Although due to be launched at the PCW show, British Telecom had some last minute hitches with there modems, and therefore only had a demo version running. Even so this looked very impressive with many more locations than the original Essex version and allowing up to a maximum of 100 players at once. Due to the unforseen problems with MUD II I have not yet been able to try out the system properly, but Co-Author Roy Trubshaw assures me that although the core of the game is the same, it has been extended beyond all recognition.

On Compunet MUD my character has had its fair share of problems to say the least!! Having made it to Enchanter a Wizard decided that I shouldn't swear and so pointed the 'Finger of Death' at me. Admittedly I had done something wrong but losing all that hard work was too much!! Boo hoo!!

Working my way up to Superhero again I met a couple of decent fellows, one of whom was a little to brave for his own good, losing a Necromancer to the Dwarves whilst trying to be too brave, eh Fixer??

Wizard wise, I have found they are all helpful, though not too much, though a special thanks to Zaphod for not laughing too much at my stupid errors!

Next month I'll be going into detail on the ways of scoring and the levels to reach. Hopefully I'll also be on MUD II, and that really should be fun.

Mack.

REWRITE THE HIGH SCORE TABLES

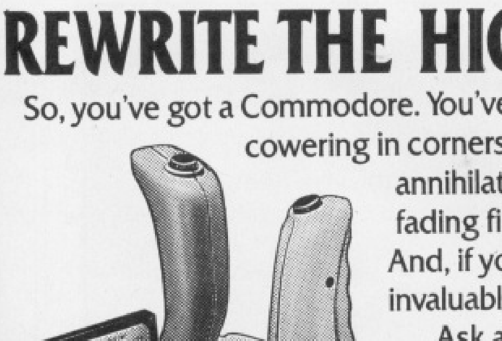
So, you've got a Commodore. You've also got enemies. With the Gunshot, you'll have all the opposition cowering in corners. 8-directional action and an all-in-one moulded stem allows accurate annihilation and strength to survive those all-night sessions. Dual fire buttons for fading fingers (and a rapid fire version when they're really coming thick and fast). And, if you break it (and we know you'll try) our 12-month guarantee will prove invaluable. Only £8.95. The Gunshot plugs directly into the CBM 64 and Vic 20. Ask about Vulcan interfaces for the C 16 and Plus 4.

See the range of Vulcan joysticks and interfaces at your local stockist ... we'll see you on the high score tables.

VULCAN ELECTRONICS LTD

Joystick Genius

200 BRENT STREET HENDON NW4 1BH TEL: 01-203 6366



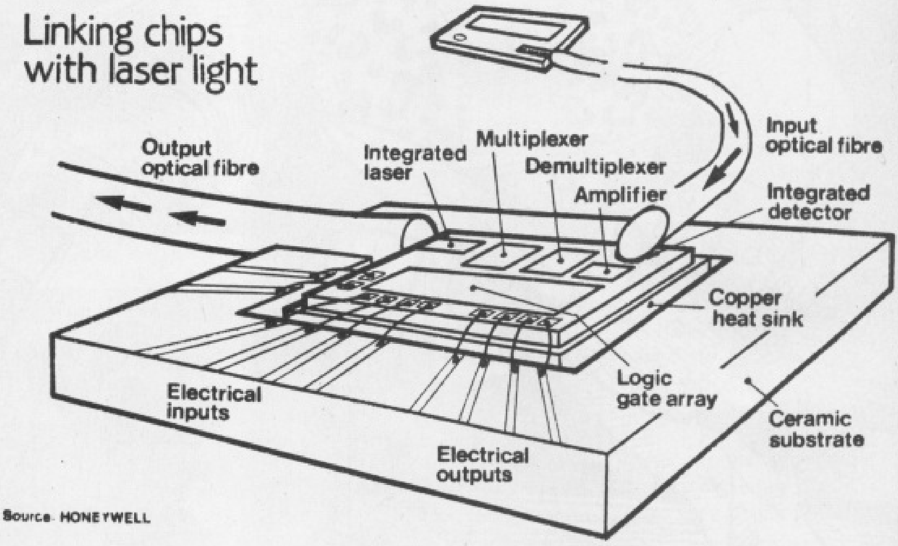
Linking Chips by Laser Light

Following last month's revelation of a man-made material threatening the monopoly of the silicon chip, Anthony Mael explains more about gallium arsenide.

When gallium arsenide is electrically stimulated it emits light. That light can be used to link chips, circuit boards or even complete computers. Information is that transmitted as a series of pulses of light along fibre optic cables instead of a electron along copper wire. Fibre optic links are already being used in large computers and gallium arsenide will make that easier, especially for chips.

Interconnections – between chips – limit the speed at which individual chips can operate; distances within a chip are so much shorter that a chip has to wait for instructions for others. Light connections work much faster and can carry more signals. This helps resolve the problem of 'pinout' in conventional chips where 200 or more input/output lines may need to be connected to a single chip. In addition light is not subject to electrical disturbances.

The totally light operated computer seems a step closer with the development by Honeywell Physical Services Center of hybrid chips in which high speed conventional and optical circuitry are combined on the same chip. It uses gallium arsenide detectors to recognise incoming instructions and a gallium arsenide laser on the chip itself to transmit to other chips.



Source: HONEYWELL

Winners of our Sporting Challenge

Judging by the response to our recent American Football combination it is a popular sport among CCI readers.

Our 10 lucky winners will soon receive complete packages of Activision's four sports titles: Decathalon, On-Court Tennis, Star League Baseball and, of course, On-Field Football.

The winners are: Tony Morley of Middleton, Manchester; Adrian Hall of Cowes, Isle of Wight, Rabin Makki of Heston, Middx; Jeff Gilton of Thurso, Caithness; Randall Spires of RAF Lakenheath, Suffolk; Railey Habib of Streatham, London; David Constable of Sharnbrook, Bedford; Andrew Probert of Builth Wells, Powys; Ian Brooks of Crewe, Cheshire; and P Stevens of West Hallam, Derbyshire.

The correct answers are as follows:

1 Which team does Dan Marino play for?
Miami Dolphins

2 How many players from a team are on the field at any one time?
Eleven

3 What is the maximum number of chances a team gets to advance 10 yards?
Four

4 Who won the 19th Superbowl?
San Francisco 49ers

This month your letters are answered by Rae West. Rae is the author of three large reference books on Commodore computers; the latest is Programming the Commodore 64, following Programming the VIC and Programming the PET/CBM. All are published in the UK by Level Ltd. Rae is also published in the USA by Compute! Books.

Dear Rae

'Having just added a 1541 Disk drive and Seikosha GP-100VC printer to my 64, I find that to justify my purchase I would like to print out something really clever, like the title pages of commercial games, histograms, and so on. But I have immense difficulty in copying hi-res screens. Also could you advise me how to draw the Racquel Welch type of picture made up of letters. Are there any books on printer graphics?

GL Phillips, Notthingham

None of these are particularly easy. This is why you'll often see the same computer illustrations (the Amiga's mandrill is a typical example) used over and over again.

The problems with screen dumps are: (i) Commercial programs are often hard to break into, so adding a program to print the screen is difficult; (ii) Printers vary a lot in the commands they'll accept. Simon's Basic for example has a screen dump command, which only works on Commodore printers or lookalikes. (iii) Some features can't be dumped very successfully: colours can to some extent be distinguished by slight differences of pattern, but sprites are impossible to dump – their registers are write-only! (iv) The programs are often slow.

Racquel Welch-style pictures need some sort of digitiser – typically a TV camera – from which images are taken by the computer, unless you want to try assessing character intensities manually. The Independent Commodore Users Group (telephone 01-590 8849, by the way, for membership information) has a camera setup which it takes to shows. You might find the cost of all this even harder to justify.

There are a few books: a good one, on Epson printers, is published by Century. I don't think there are any general books, with programs, on printer graphics.

To summarise, you could (i) Content yourself with reversed lettering, graphics characters and so on, which add visual interest without too much work; (ii) Get some programs (my own 64 book has examples) to plot, then dump. These may need modifying to work with your printer (though a number of CBM printers are really Seikoshas); (iii) Try a screen dump utility, or a program like Broderbund's 'Print Shop', designed specifically to produce wide-ranging graphics effects.

Dear Rae

'The 64 character designer program (August CCI) does not seem to work on the Plus/4.'

EJ Binns, Bristol

Only straightforward BASIC programs can be expected to work on both machines. Most POKEs will need conversion, where this is possible. The SID and VIC-II chips of the 64 are completely different from the Plus/4's TED, and the screens and colour RAM are in different places. CCI, New Year 1985 has an overview article of mine, but there's too little space here for a table of conversions. Generally, try to stick to simple BASIC, except for C16 programs, which should always work on the Plus/4.

Dear Rae

'My 64, which I've run successfully for six months with Easyscript, a Silver Reed typewriter, and a Tripler interface, now crashes part way through the program, displaying letters and numbers at a rapid rate . . . The electrics have been checked . . . The shop put the computer on its test bench for one day and said it was OK, but I find this strange since it crashes when operating by tape . . .'

PA McGrath, Liverpool

If your 64 fails to work properly with something as simple as, say, LOAD from tape, it must be faulty: your shop presumably didn't test it thoroughly on their 'test bench'. It's possible that there's a problem with one of the CIAs driving the tape; or maybe, if it's an older 64, some chips may have worked loose. Alternatively, the disk software may have developed a fault: you could test for this by running a backup copy of Easyscript.

Dear Rae

'I have a cheap black-and-green monitor with a TV-aerial type socket. I'd like to use this to free up my colour TV, but I can't get it to work with my 64.'

T Phillips, Eastbourne

This shouldn't be too much of a problem. You'll need a cable connecting the monitor to the video signal, and ground, from the 64's audio/video socket. These are pins 2 and 4 (South and South-East looking into the 64) of the AV socket. The same cable will also work with the VIC-20.

Dear Rae

Is it possible to transfer data from my 64 to a larger machine, such as an Osborne or IBM PC? I'd like to work on a 64 wordprocessor and put the resulting disk information (names and addresses and so on) onto a PC, to be edited and printed out with other work. I've come across references to the RS232 software built into the 64, but I can't find anyone who's made use of it.

W Call, Leicester

It is fairly easy, but you'll need extra hardware and software.

The 64's user-port (it's next to the tape port) is treated by BASIC as device 2. Unfortunately, RS232 voltages were standardised before micros became popular, and are awkward to include cheaply. Commodore offers the 11;1A cartridge user-port adaptor, which converts to true RS232, and I've used it successfully. It may be hard to get. An RS232 cable between a PC and a 64 with a 1011 allows communication.

If you don't have 64 terminal software, you'll need snytax like OPEN 1,2,0,CHR$(40)+CHR$(0) at the start of a program (it allocates some memory for buffers) to open an RS232 file. This is 1200 Baud with 8 bits; many other permutations are available.

Dear Rae

'I am 19 and have just completed an 'A'-Level in Computer Science. Could you advise me on how I should proceed to master my machine to a degree where I could write software like the superb programs in Commodore Computing?'

K Elliott, Trowbridge

Certainly. Get my book, 'Programming the Commodore 64', modestly subtitled 'the definitive reference to the 64', and work through its 600 pages carefully. By the time you finish you'll be very adept!!

Dear Rae

'I've written a few nice BASIC programs which I'm pleased with – one analyses the Times portfolio game, and checks my cards for winners! So far I've had no luck! I want to know if I can speed up my programs, because Basic can be a bit slow.'

H Yates, Trowbridge

You could try compiling your programs. A compiler converts BASIC (or other languages, for that matter) into machine language, in a way which bypasses the normal Basic and runs faster. Oxford Computer Systems have one for the 64; so do First Publishing (confusing called 'BASIC 64'). You can expect speed increases of perhaps 3 or 4 times. Note that the Stop key won't work as it does in BASIC; a compiled program has no line numbers and cannot be edited and corrected. So make sure your programs are debugged!

Do you have a computing problem, or advice to offer other readers? Write to us at:

Queries,
Commodore Computing International,
Finsbury Business Centre,
40 Bowling Green Lane,
London EC1R 0NE

Please do not send your SAE's as it is impossible to reply personally to every query.

PERIPHERAL GIVEAWAYS

Win The Stick!!!

1. In what way does the Stick differ from other joysticks? ....

....

2. What types of games is the Stick best suited to? ....

Win a Datex Mouse!!!

1. Which computer first had a mouse as standard? ....
2. What is the new Commodore that will feature a mouse called? ....

Please send all entries to:
Peripherals Competition
Finsbury Business Centre
40 Bowling Green Lane
London EC1R ONE
All entries should reach us by November 12th

Win a Datapen!!!

1. What port would you plug the Datapen into? ....

2. What does LED stand for? ....

....

Name ....
Address ....
....
....
....
....

STEVE GOES TO POT

STEVE DAVIS SNOOKER

Take the highest paid British sports stars (with one of the most marketable characters, too) in a game that interests millions on TV . . . it was a dead cert that some smart software company, if they could afford it, would snatch up the Steve Davis name on which to build a computerised snooker game.

Unlike most personality games, you do not play Mr Davis, rather you play against him. Having decided what level to play at, and whether you want a one or two player game; you commence.

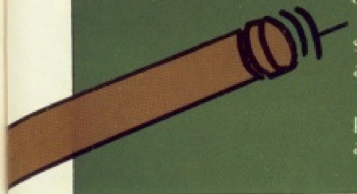
The graphics are neat, although sometimes the colours are, not suprisingly, a little difficult to distinguish.

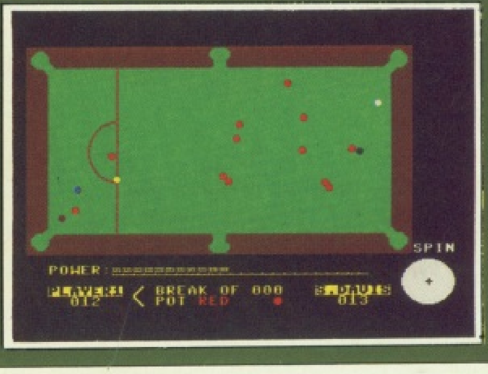
The nicest feature of the game is the well programmed ricochet action, which although a little slow, is very realistically done. To start with I found the game very difficult as I failed to pot easy shots, while Steve knocked them in left, right, and centre. But gradually I improved and once, on level 5, I nearly beat him!!

The sound, if a little limited, is nice although the play along tune does get repetitive.

Overall the game is good fun for anyone with a passing interest in Snooker. **It has good gameplay, as well as allowing a trick shot section,** and a level 9 where Mr Davis continually clocks up 100+ breaks.

Graphics: ****
Sound: ***
Playability: ***
CCI rating: ****
Price: £8.95 cassette, £12.95 disk.
Contact: CDS Software Ltd, Silver House, Silver Street, Doncaster DN1 1HL. Tel: 0302 21134.





MARVELLOUS MONTY RRUNS RRIOT !!

MONTY ON THE RUN

Monty on the run is the newest platform game from the very good Gremlin Graphics software house.

Designed as a sequel to the successful Monty Mole, you are in control of a neatly defined character whose sole ambition is to travel about his house searching for, as in almost all platform games, items to enable him to escape. In Monty's case the most important item, and the final one, is a boat.

Although there are quite literally hundreds of similar games for the 64, **Monty on the Run stands head and shoulders above all platform games,** and arguably all games, due to one aspect — the sound. The music on this game is quite unlike anything I've ever heard before. If you, like me, thought the music on Loco was great, you'll love this.

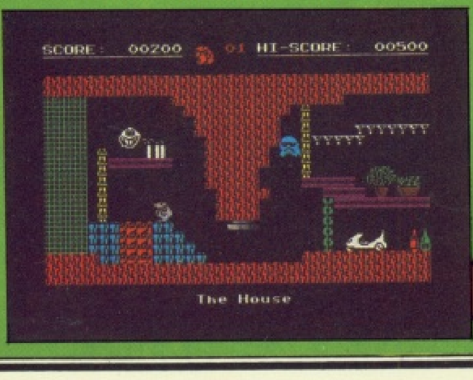
Using all the superb facilities of the 64's sound chip, there are three different tunes, all very long and equally enjoyable. The bass on the initial tune would have Level 42 quaking in their shoes!

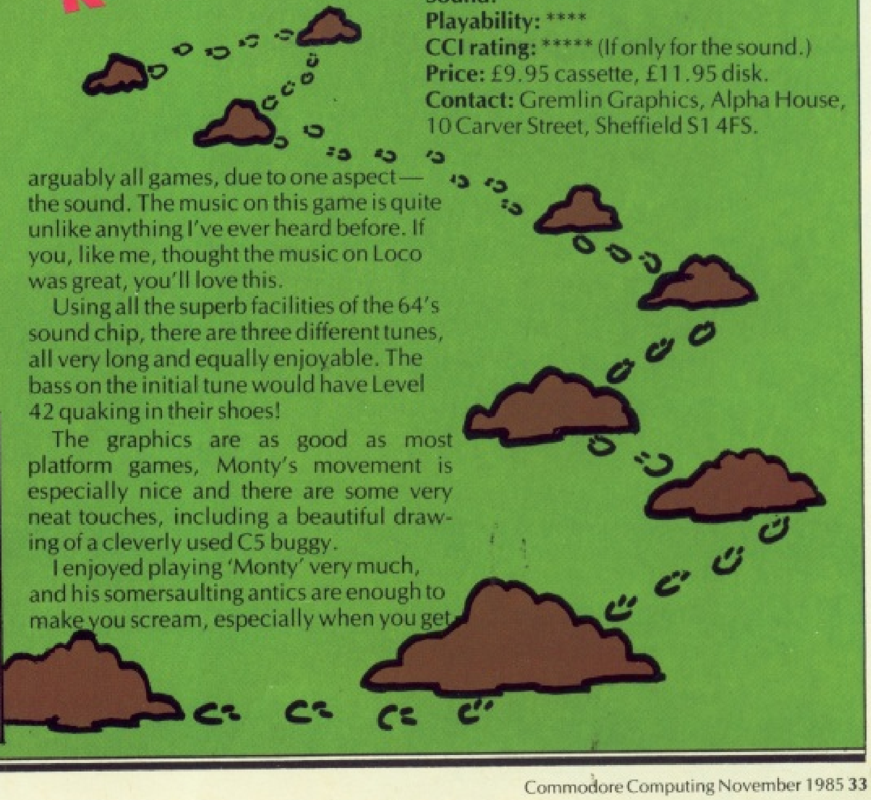
The graphics are as good as most platform games, Monty's movement is especially nice and there are some very neat touches, including a beautiful drawing of a cleverly used C5 buggy.

I enjoyed playing 'Monty' very much, and his somersaulting antics are enough to make you scream, especially when you get crunched inches from discovering a new room!

Overall, Monty on the Run is an above average game, with amazing sound. Even if you dislike platform games, buy this one, if only to give your stereo a break!!!

Graphics: ****
Sound: *****
Playability: ****
CCI rating: ***** (If only for the sound.)
Price: £9.95 cassette, £11.95 disk.
Contact: Gremlin Graphics, Alpha House, 10 Carver Street, Sheffield S1 4FS.





AVAILABLE FROM LEADING HIGH STREET STORES

SUITABLE FOR COMMODORE 64 & 128 HOME COMPUTERS

I'M TALKING TO YOU!

This is your Commodore computer speaking. Or it could be, with the simple addition of Welwyn's great new computer speech facility – 'Speech 64.' Just slot Speech 64 into your Commodore, and you'll be listening to your computer talking to you through your TV as the words you key in appear on screen. Adding a whole new dimension to all the fun you get out of your computer, lightening up the serious business of work, educational programs and games. An infinite vocabulary at your fingertips, simple to add, simple to use. You can make your computer talk with the Currah 'Speech 64' unit for only £21.95. Now, that's really talking!

RRP £21·95
EASY TO ADD, EASY TO USE

READ ALL ABOUT IT - MICRONET PAGE 60043712

CURRAH SPEECH 64

We can make Sinclairs speak too

MAKES YOUR COMPUTER SPEAK!

Another great product from Welwyn ELECTRONIC SYSTEMS

IT MAKES DRUMMING SOUND LIKE HARD WORK

Whether you want to play along to it, do demo's and record with it, sing along and dance to it or just enjoy programming it — The Syntron Digidrum — Get It!

The Syntron Digidrum comes complete with a hardware user port connector, audio out, trigger out, easy to follow user's guide, software with the first eight digital samples including Crash Cymbal, Snare Drum, Bass Drum, Floor Tom, Hi Tom, Med Tom, Open Hi Hat, Closed Hi Hat and programming functions. The software contains a complete set of demonstration patterns and songs — All this for just **£65.00** Inc VAT.

SMALL COMPACT, QUALITY, BOOM, CRA

There is already a new sound sample set in preparation which will contain over 40 new samples including Syn Drums, Latin percussion, Hand Claps and many more for only £16.50! All purchasers of the Syntron Digidrum will receive details of the new sound samples as they become available plus a FREE subscription to the SYNDROMIC USERBASE which includes a membership card and a FREE quarterly newspaper on computer music and computer musicians written by leading music and computer journalists. Please fill out and return the coupon below.

SyNDROMIC MUSIC

THE BBIG BBBLACK BEAT BBBOX

SYNTRON DIGIDRUM

The Syntron Digidrum is an exciting professional digital drumcomputer designed to operate with the Commodore 64.

Using 'live' digital sound samples which are encoded onto software the user has a programmable drum machine with a sound quality many times the price.

Easy visual grid programming, hear the sounds you enter, 51 patterns available in memory plus 10 songs linking 100 patterns together are possible with full copy, insert and delete functions.

☐ I would like further information on the Syntron Digidrum

☐ I would like to order my Syntron Digidrum(s)

NAME ....

ADDRESS ....

....

Syntron Digidrum — Disk version @ £65.00 Inc. VAT ....
— Cassette version @ £65.00 Inc. VAT ....

Please add £2.50 for packaging/postage/insurance.

I enclose a cheque/postal order — made payable to SYNDROMIC MUSIC — to the value of £..................

All orders should be sent to SYNDROMIC MUSIC, 35A Grove Avenue, London, N10 2AS

SYNDROMIC MUSIC GUARANTEE

Not to Bank your monies until the Goods are ready for Dispatch.

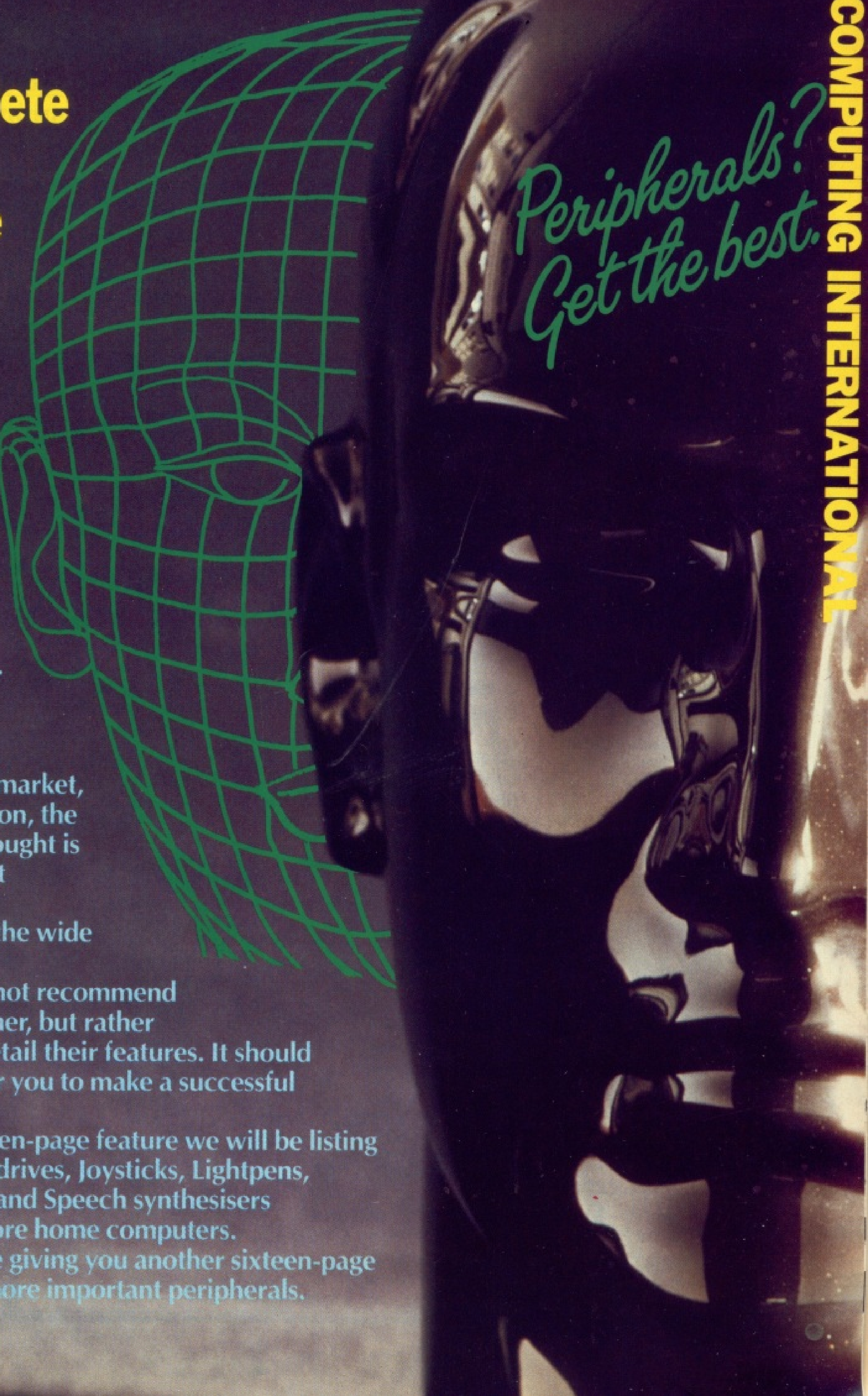
Please allow 21 days for delivery

digi ever hear such a sound?

COMMODORE COMPUTING INTERNATIONAL

ADD-ON GUIDE

CCI's Complete Guide to all Commodore Peripherals you could use.


Peripherals? Get the best.

There comes a time when, having begun to understand your computer, you decide that purchasing a peripheral would add to both the enjoyment and the usefulness of it. In fact it is peripherals that really make the computer a useful tool.

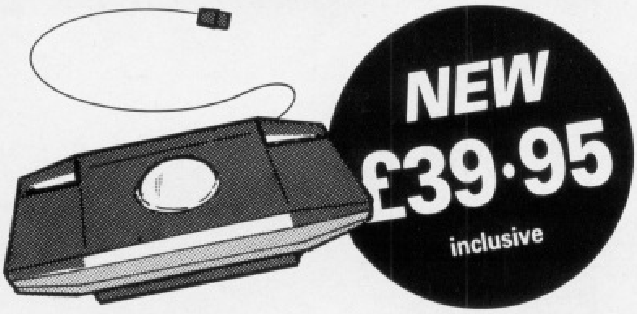
In the Commodore market, almost without exception, the first peripheral to be bought is a joystick, but even that decision can become difficult when you see the wide variety available.

This CCI guide will not recommend one product over another, but rather list the products and detail their features. It should then be much easier for you to make a successful decision.

In this month's sixteen-page feature we will be listing the Disk drives, Wafer drives, Joysticks, Lightpens, Graphic tablets, Mice, and Speech synthesisers available for Commodore home computers.

Next month we'll be giving you another sixteen-page guide covering many more important peripherals.

STACK 100 PRODUCTS



FOR CBM64
- **TRACKER BALL**
- **BALLPOINT® COLOUR DRAWING SOFTWARE**
- **FUNCTIONS AS JOYSTICK TOO**

(Software is supplied on cassette but is transferable to disk)

A superbly smooth OPTICAL TRACKER BALL system for the CBM64 with a switch to change from ball to joystick mode. Ballpoint is a 100% Machine Code Program in HIGH RESOLUTION MULTICOLOUR mode giving 2 SCREENS of 160x200 pixels. Disk or tape picture saving – Printer Output – Icon manipulation.

- **Over 20 Ball-Selected Commands**
- **Pick-up-and-Move Feature for sections of your pictures**
- **Extra One-Key Commands**
- **16 Colours – Use any 4 at once**
- **Accurate and stable**

Background
Circle
Clear
Colour
Copy
Exchange
Fill
Get
Line
Lock X
Lock Y
Merge
Nib
Output
Plot (OR)
Plot (XOR)
Put
Quadrilateral
Read
Unplot
Write
Zoom
Etc.

Available from good computer stores or direct from
MEEDMORE (DISTRIBUTION) LIMITED
28 Farriers Way Industrial Estate, Netherton,
Merseyside L30 4XL
Tel: 051-521 2202

★ **P&P FREE**

Cheques: Meedmore

STACK 100 PRODUCTS – FROM MEEDMORE LTD.

GENERAL

Verbatim Diskettes	
MD 525-01	**£18.23**
MD 550-01	**£22.43**
MD 577-01	**£22.43**
MD 557-01	**£29.33**
SS SD	**£11.93**
SS DD	**£14.61**

per box of 10

Ribbons	
MPS 801	**£3.78**
1515	**£3.58**
MX80 Etc.	**£3.78**

all others available

Dustcovers*	
CBM64/CBM VIC 20 CBM16	**£1.75**
C2N/1530	**£1.50**
1541	**£3.00**
1525	**£4.00**
1701	**£6.00**
MPS801	**£3.00**

*Anti-Static, Rot Proof, Flame Retardant all others available

CBM64

Ballpoint Trackball	**£39.95**
Lightpen + 10 games + Draw Program	**£28.00**
Colour Paintbox for Lightpen	**£5.75**
RS232 Interface	**£33.00**
Centronics Interface Tape	**£24.00**
Centronics Interface Disk	**£29.00**
4-Slot Motherboard (Switchable)	**£28.00**
Mini Blitz Disk Compiler	**£15.00**
Joystick	**£7.95**

Cartridges	
Arrow (tape speed up + M/C monitor)	**£16.00**
Arrow + (as Arrow plus assembler/ disassembler)	**£24.00**
Help (20 programming commands plus disassembler plus DOS	**£19.00**
Super Help (as Help plus 2 pass assembler)	**£29.00**
Rom Carrier (take 2x4k Eproms)	**£12.00**

VIC 20

Lightpen + 10 games + Draw Program	**£28.00**
RS232 Interface	**£33.00**
4-Slot Motherboard (Switchable)	**£28.00**
Centronics Interface Tape	**£24.00**
Centronics Interface Disk	**£29.00**
IEEE Cartridge	**£29.00**
Ram 'n' Rom Carrier (takes 3K Ram + 2x4K Eproms)	**£12.00**

C=Cartridge E=Eprom

Vickit 2 (21 Extra Programming commands)	C **£16.00**	E **£5.00**
Vickit 3 (20 extra graphics commands)	C **£16.00**	E **£5.00**
Vickit 4 & 5 combined (tape speed up – source editor + assembler)	C **£21.00**	E **£10.00**

BBC B

Ballpoint Trackball + game	**£29.95**
Lightpen + 10 games + Draw Program	**£28.00**
Graphix-Ed Graphics Software	**£5.75**

MEEDMORE
(Distribution)
LIMITED
28 Farriers Way
Industrial Estate,
Netherton, Merseyside,
L30 4XL
Tel: 051-521 2202

P&P 90p – Free over £10

Prices include VAT

Joysticks / Trackerballs

Product	Features	Commodore Machine	Price	Guarantee	Company
Formula I	Bright blue, 2 fire buttons, microswitch	64, VIC 20	£16.95	6 months	Kempston
Formula II	Bright blue, 3 fire buttons, leaf switch	64, VIC 20	£11.95	6 months	Kempston
Sure Shot	Black & red, 2 fire buttons	64, VIC 20	£15.95	12 months	Cookridge
Sure Shot Supreme	Black & red, 2 fire buttons, one on handle	64, VIC 20	£17.95	12 months	Cookridge
Zipstick	Black & red, 2 fire buttons	64, VIC 20, C16	£12.95	12 months	Cookridge
RB II Marconi	Tackerball with software — cassette or disk	64, VIC 20	Cass £59.50 Disk £69.50		Central Trade Exchange
Competition Pro 5000	Black, 2 fire buttons	64, VIC 20	£13.50	12 months	Dynamics
Formula I	Blue, 2 fire buttons	64, VIC 20	£16.95	12 months	Dynamics
Commodore Joystick	Cream, one fire button on base	64, VIC 20	£7.50	12 months	CBM UK Ltd
Commodore Joystick	Charcoal black, one fire button on top of handle, contoured, very sensitive	C16, Plus 4	£9.99	12 months	CBM UK Ltd

Review

"Built like a battle ship" is a fitting description of the Tracker Ball, for this control device is designed along the same lines as those used by the Ministry of Defence and air traffic contollers.

Manufactured by Marconi and marketed by Central Trade Exchange, the Tracker Ball is entirely manufactured in England. A sturdy, yet not unattractive device, the Tracker Ball replaces joystick and mouse controls.

A version has just been released for the 64 and CCI were invited to take a look at the very first unit in the country.

At £59.50, it may be considered an expensive alternative to a joystick, but hands on experience with the Tracker Ball will win you over.

"Fingertip operation"

Unlike joysticks, it is built to last and is repairable. And unlike a mouse, it does not require cleaning.

Constructed of rigid beige plastic, the Tracker Ball is desk top mounted for easy access. Precise X-Y cursor control is achieved by fingertip operation of the central ball. This is remarkably smooth and requires little effort, freely rotating in any direction. There are also three switch buttons at the top of the Tracker Ball.

Central Trade is giving away software with the Tracker Ball. A sprite-based cassette based on Talent's popular Panorama H offers colour graphics. A comprehensive manual is also provided.

In addition to usual features of a graphics package, this software offers a 'zoom' facility enabling the user to work on a drawing one pixel at a time. Also the facility of two screens enables a form of animation.

"Eliminates strain in use"

Ease of use is just one of the advantages of the Tracker Ball holds over other control devices. You don't need the desk space that a mouse requires and no strain is placed on the hands or arms.

An initial drawback may be the shortage of Tracker Ball controlled software currently available. However some software houses are already modifying and writing software and Control Exchange is confident that others will quickly follow suit.

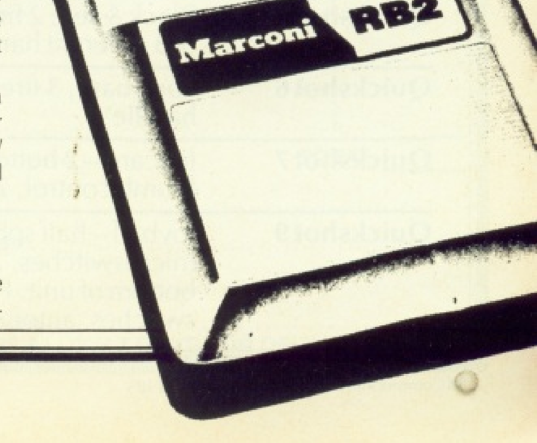
Marconi designed the Tracker Ball as a quality device for the serious hobbyist, for educational uses, and for low cost CAD/RAM applications is endless and limited only by imagination.

"Superior control"

An important market must surely be handicapped people with limited movement. The Tracker Ball's control ball rotates so freely that it could easily be operated by any part of the body.

It also enables superior control in games. After all, if air traffic controllers trust this control device to guide aircraft successfully, you should feel more confident in your computer game battles!

Contact: Central Trade Exchange, Aston Lodge, Ashtan Road, Dunstable, Beds LU6 1NP. Tel: 0582 64334.



THE STICK
REVOLUTIONARY NEW
BASE-LESS
JOYSTICK
CREATED FOR

Two unusual joysticks Apollo's Turbo Ace (above) and Lightwave's The Stick (right)

The Stick	Black & red, hand-held, no base, 2 fire buttons, good with sports games & flight simulation	Fits all with 9 pin D-type connector	£12.99	12 months	Lightwave
Delta 3SC	Black, or black with red stripes, 3 fire buttons, light fast action	64, VIC 20	£10.00	12 months	Voltmace
Computec	Black, 2 fire buttons	64, VIC 20	£9.95		Micropride
Atari Joystick	Black, one fire button	64, VIC 20	£7.99	12 months	Atari
Atari Trakball	2 buttons, rolling ball in centre	64, VIC 20	£9.99	12 months	Atari
Vulcan Gunshot I	Cream & beige, 2 fire buttons, suction pad underneath	64, VIC 20	£7.95	12 months	Vulcan
Vulcan Gunshot II	Black, 2 buttons, autofire, suction pad underneath	64, VIC 20	£9.95	12 months	Vulcan
Quickshot 1	Black & red, 2 fire buttons	64, VIC 20	£6.95	90 days	Spectavideo
Quickshot 2	Black & red, 2 fire buttons, autofire	64, VIC 20	£9.95	90 days	Spectavideo
Quickshot 4	Black & red, 2 fire buttons, choice of 3 different handles	64, VIC 20	£13.95	90 days	Spectavideo
Quickshot 6	Long base, 3 fire buttons, 2 on handle	64, VIC 20	£9.95	90 days	Spectavideo
Quickshot 7	Joycard – 2 buttons on sides, thumb control, 2 lights l.e.d.	64, VIC 20	£10.95	90 days	Spectavideo
Quickshot 9	Joyball – half sphere on large base, microswitches, 2 big fire buttons at bottom of unit. Players 1 and 2 switches, autofire. Cream & brown.	64, VIC 20	£13.95	90 days	Spectavideo

DIMENSION computers l.t.d.

27/29 High Street
Leicester LE1 4FP
Tel:(0533) 57479

THE MIDLAND'S LARGEST HOME COMPUTER STORE

commodore AUTUMN SPECIALS

COMMODORE PERIPHERAL PACK

- MPS 801 PRINTER
- 1541 DISC DRIVE
- EASYSCRIPT WORDPROCESSOR
- GAMES DISC

OFFER PRICE £199

NOW IN STOCK!

The long awaited —

COMMODORE 128

- TOTALLY COMPATIBLE WITH COMMODORE 64 SOFTWARE AND PERIPHERALS
- 128K MODE
- CPM MODE

Limited Quantity **£269.95**

STAR PRINTER OFFER

The remarkable STAR SG10C

- 100% COMMODORE COMPATIBLE
- 120 CPS PRINT SPEED
- NEAR LETTER QUALITY PRINT MODE
- NO INTERFACE REQUIRED
- FRICTION AND TRACTOR FEED

£259

Including FREE Easyscript Wordprocessor worth £75

COMMODORE 128 PACK

COMMODORE 128 PLUS NEW 3-MODE DISC DRIVE

£449

MPS 801 PRINTER OFFER

Recommended Retail £229.95

OFFER PRICE £99.95

COMMODORE AND DISC DRIVE OFFER

COMMODORE 64
1541 DISC DRIVE
SUPER ZAXXON
ULTIMA III

£299

COMMODORE CHRISTMAS PACK

• Commodore 64 • Data Recorder • Music Maker Keyboard • Designers Pencil • Adrian Mole Game + Book •

OFFER PRICE £199

PRODUCT ENQUIRY HOTLINE
Please ring for details of the wide range of Hardware, Software and Peripherals available via our mail order service.

To order, either send cheque/P.O. with coupon or ring *(0533) 57479/21874* with Access/Barclaycard number.

Please add £5.00 carriage to any Hardware order.

COMMODORE SOFTWARE OFFERS

Handic EasyCalc (Spreadsheet)	~~£49.95~~ — £14.95 Cartridge
Handic Calc Result (3-D Spreadsheet)	~~£99.95~~ — £39.95 Disc & Cartridge
Handic Diary	~~£29.95~~ — £ 9.95 Cartridge
Practicorp Practicalc (Spreadsheet)	~~£39.95~~ — £14.95 Cassette
Practicorp Practicalc (Spreadsheet)	~~£44.50~~ — £17.95 Disc
Practicorp Practifile (Data base)	~~£44.50~~ — £17.95 Disc
Audiogenic Wordcraft 40 (Wordprocessor)	~~£89.95~~ — £24.95 Cartridge
Stack Arrow (Programmer's Aid)	~~£19.95~~ — £ 7.95 Cartridge
SPT Quick Brown Fox (Wordprocessor)	~~£69.00~~ — £24.95 Cassette or Disc
Commodore Easyspell (Spellcheck for Easyscript	~~£50.00~~ — £19.95 Disc

PERSONAL CALLERS AND EXPORT ENQUIRIES WELCOME

ALL OFFERS STRICTLY SUBJECT TO AVAILABILITY.

Send to:- Dept.CC7, Dimension Computers Ltd., 27/29 High Street, Leicester LE1 4FP.

ITEM	QUANTITY	PRICE
....		....
....		....
....		....
....		....
	TOTAL	______

Name..
Address..
....
Telephone..

PLEASE ALLOW 7 DAYS FOR DELIVERY

Joysticks / Trackerballs

Product	Features	Commodore Machine	Price	Guarantee	Company
Turbo Ace	Fire button on steering wheel, speed regulation and centralisation autofire facility	64	£29.95 + £1.50 delivery	No fixed period – will replace and repair faulty goods	Apollo
Ballpoint	Icon manipulation 16 colours (any 4 usable at once), sections of drawings may be picked up & moved, drawings compatible with light pen drawings, optical trackerball, trackerball or joystick.	64	£39.95	12 months	Meedmore
Champion	Built-in autofire, 2 fire buttons	64 (C16 & 264 via interfacing)	£11.99	12 months	CGL
Boss	Grey with black handle, heavy duty construction with split second reaction	64 (C16 & Plus 4 interfacing)	£15.99	12 months	CGL
Bat Handle	Dual fire button	64 (C16 & Plus/4 interfacing)	£27.99	12 months	CGL
Super 3-way	Control customized for any game, dual fire buttons, direction option, 4 & 8 position, 3 arcade handles	64 (C16 & 264 via interfacing)	£32.99	12 months	CGL
Mach 1	Black with three red buttons. Moulded handgrip and an autofire switch	64, VIC 20	£8.95	12 months	Cheetah

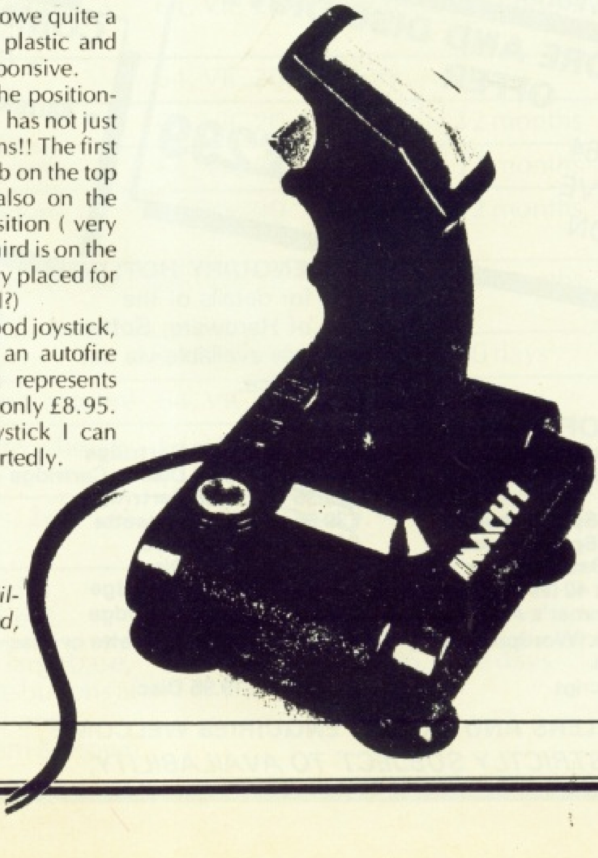
Review

New from Cheetah marketing is a modestly priced, and high quality joystick for the 64 and VIC-20.

Called the Mach 1, it reminds me of the Quickshot II, to which it must owe quite a lot. It is made from moulded plastic and seems to be strong and very responsive.

Perhaps the best feature is the positioning of the fire keys. The Mach I has not just one or two, but three fire buttons!! The first is well positioned for the thumb on the top of the handle; the second, also on the handle, is in a trigger-like position (very good for zapping aliens); the third is on the base of the joystick and is neatly placed for accurate use (Summer Games II?)

Overall I found this to be a good joystick, with the additional extras of an autofire switch and suction pads, it represents really good value for money at only £8.95. If you have yet to buy a joystick I can recommend this one wholeheartedly.



Contact: Cheetah Marketing Ltd, 1 Willowbrook Science Park, Crickhowell Road, St. Mellons, Cardiff. Tel: 0222 777337.

Review

We were very impressed by this lightpen and the accompanying program costing £25. The lightpen has some useful features and the booklet and cassette explain exactly what these are, how the pen works, how to utilise its capabilities to their best advantage in program routines and how to use effectively the Commodore graphic abilities.

The light sensor of the pen is very powerful and will pick up information from the screen even if it is held a foot away from the screen. Local light has no effect on the lightpen so that it reacts with all colours and there is no need to alter the brilliance controls.

A red light, the LED indicator at the end of the pen, lights up whenever there is anything on the screen. This indicates to the operator whether the lightpen is working or not. Using the white switch set in the pen's side, the pen can be told to ignore any signals. This enables the operator to get the pen to the position desired before actually using it.

The various items of written information accompanying the lightpen are lucid and fairly easy to understand, even for a comparatively inexperienced programmer. The program and handbook with the datapen lightpen could be utilised to design a program such as Paintbox.

The introductory program on tape shows among other things how to find routines for your own programs. Air balloon sprites appear at the end and these can be moved around with the pen. A listing is provided and can be studied in conjunction with the program. With the Colour-Draw program the operator can draw, using either a fast or slow menu, any of the Commodore characters and colours. The drawings can be saved. The Hi-Res draw program can be used to produce high resolution drawings. Using a menu displayed on the screen, several drawing styles can be chosen; lines, dots, turtle, continuous and erase. These can all be saved.

The pen draws with a fair degree of accuracy and anyone with this package and a relevant computer handbook would have a good chance of designing a program for use with this lightpen.

Contact: Datapen Microtechnology Ltd, Kingsclere Road, Overton, Hants. Tel: 0256 770488.

Lightpens	Features	Commodore Machine	Price	Guarantee	Company
Datapen	Buff casing, no interface needed	64, VIC 20	£25.00	12 months	Datapen
Trojan Lightpens	Black. Will draw freehand, can magnify or reduce, can fill in with either colour or 2 different patterns	64, VIC 20, C16	£17.25		Trojan
Mice					
Datex Mouse	Mouse, tape & disk software	64	£76.00	12 months	EEC
The Magic Mouse	Mouse, tape & disk software	64	£59.95	12 months	SMC

Review

For £69.95 you get a mouse which plugs into joystick port two, and software available on disk or cassette.

The mouse is beige in colour with two buttons at the front – select and release. It requires a smooth surface and is comfortable to the grip.

However, it is the software that we are really concerned with in this instance. The screen shows the various options from the obvious draw, paint, fill and erase to text, brush styles and a choice of spray and fill patterns, the latter of which can be modified by the user.

There are also four pull-down menus – options, extras, line and text.

Fifteen colours are available for both the background (paper) and foreground (ink). However, due to the Commodore graphics system it is only possible to have two colours on the screen at one time. Despite this, it is possible to create some striking pictures.

The quality of circles and diagonal lines is good. Also the speed with which shapes are drawn and filled is acceptably fast unlike some of the other packages reviewed here.

While being initially fun to use, the erase function in the graphical form of a rubber requires concentration and a steady hand. One of my only gripes with this program is the lack of an 'erase last move' feature. I couldn't get perfect results using the erase and on more than one occasion virtually tore my hair out after, for example, leaving a small gap allowing colour to flood in where it shouldn't have been. There is an 'erase all' function, but this is not suitable in the above instances.

Being icon-driven, the program is extremely easy to use. It's facilities make it attractive to not only the budding computer artist, but also to the small businessman who may well find it useful in terms of producing graphs and pie-charts. Indeed further utility and word processing programs are being developed for the more serious user.

Contact: EEC Distribution Services, 14 Western Parade, Barnet, Herts EN5 1AD. Tel: 01-441 1722/1590.

star & DATAPLUS

Bring your CBM64 to life in seconds!

The STAR SG-10C printer is 100% compatible with the Commodore 64. Plug it in and your text or graphics come out clean, clear and crisp. There's fast 120 cps draft mode and NLQ (Near Letter Quality) worthy of your formal correspondence selectable via front panel switches.

User-friendly, this Star dot matrix printer is complete with friction and tractor feed.

Nothing else to buy, no special cables, no boxes. Star's 35 years of proven technological experience brings you a high quality printer, backed by a full one-year warranty.

DATAPLUS
– Star officially appointed retailer –
OFFER THE SG-10
complete with interface cable, at

£225 plus VAT.

Pay by cheque, Access or Barclaycard.

DATAPLUS

DATAPLUS-PSI LTD 39-49 ROMAN ROAD
CHELTENHAM GL51 8QQ TEL: 0242-30030/37373 &
573573 (24Hr) EASYLINK 19004620 TELECOM GOLD 83: JBC013

Marconi RBX Tracker Ball for your Commodore 64

- **Small footprint: needs less desk space than any similar device.**
- **High impact plastic case.**
- **Three user-programmable push buttons.**
- **Precise positional control: zero drift.**
- **Comes complete with software.**
- **2¼" precision ball: 200 pulses per ball revolution.**
- **Plugs directly into the Commodore 64.**

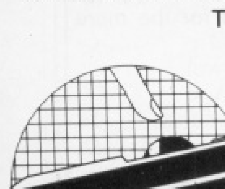
TRACKER BALL RBX

The Marconi Tracker Ball provides precise X-Y cursor position control by simple fingertip operation of the central ball. Instant start-stop, exact directional change. More precise and stable than a joystick. Needs less space than a mouse. Hold in your hand or operate from your lap. Easy to use.

The RBX Tracker Ball is intended for serious hobbyists, educational establishments, users of popular graphic programs and low cost CAD/CAM. The precision and speed of this cursor controller makes it ideal for use with ICON and menu driven software.

The output from the Tracker Ball is a train of pulses with directional infromation for each of the X and Y axes. Each pulse, generated by an optical encoder provides an increment of cursor movement.

The RBX design incorporates Marconi's many years of experience in making Tracker Balls for Military and Air Traffic Control applications demanding maximum performance and reliability.



SOFTWARE

The RBX comes complete with a User Guide and drawing program, so you can get to work immediately. For the serious programmer Marconi also give the information to link your RBX to your own programs. Additional software, including a full ICON driven graphics/CAD package, ICON driven sprite designer and character generator will be available soon.

only £69.95

For full details fill in the coupon and post today.

To: Tech. Marketing and Distribution
C6 The Ropewalk Industrial Centre,
Station Road, Ilkeston, Derbyshire.

Please send details of the new Marconi Tracker Ball.

Name:..

Address: ....

....

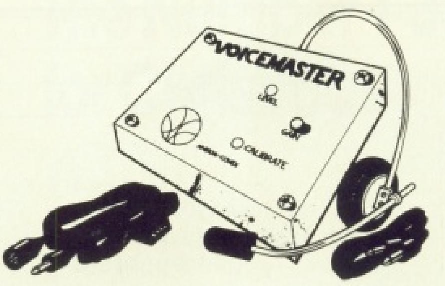
.... Tel:....................

Cheetah's Sweet Talker

Speech Recognition & Synthesis

Product	Features	Commodore Machine	Price	Guarantee	Company
Sweet Talker	Synthesiser — allophone system, 3″ square, 1½″ high, gives examples & demonstrations. Shape & colour as Commodore	64	£24.95	12 months	Cheetah
Voicemaster	Unique 3-in-one package, speech reproduction, speaks in own voice. Voice harp – just whistle or hum to produce music	64	£59.95		Anirog
Currah Speech 64	"Y" cable available, converts text to speech direct from screen, uses allo-phones system, infinite vocab.	64 (compatible with C128)	£21.95	12 months	Welwyn Electronics

Review



Voicemaster consists of a small aluminium box which plugs into the rear joystick port of the 64 and a head set with one earphone and a microphone which can be positioned via a swivel joint. A DIN plug connects the unit to the computer via the audio/video port, and a second lead is for use with a video monitor.

Costing £59.95, Voicemaster offers you three functions: speech synthesis, word recognition, and composing and performing music in real time.

Unlike other speech synthesisers which manufacture speech from allophones, Voicemaster stores and then plays back sounds. Indeed, this is digital sampling.

On the speech synthesising side, you record by typing in Learn and a number between 1 and 64 (this number refers to a word or phrase). On pressing return the computer waits for your word, records as you speak and stops recording when you stop speaking. Type Speak followed by your chosen number, and the computer repeats your word.

A better quality of speech can be achieved by increasing the number of samples of sound taken per second (Basic commands listed in the manual explain this procedure), but this will cost you in terms of memory. Special effects such as echoes can be achieved using the Speed and Volume controls.

The word recognition facility uses a similar technique. This samples a word again and again so that the word can be remembered and acted upon. You can save voice recognition data to disk or cassette.

Voiceharp is a function which enables you to hum or whistle a tune and have the computer hum or whistle the tune back to you, or print it out on a musical stave. Unfortunately this section of the program was not available on our reviewing sample, but it sounds very exciting.

You'll have hours of fun experimenting with Voicemaster and budding games authors will be pleased to hear that once you have digitised your words, the result can be saved and played back on any 64 without the hardware.

Contact: Anirog, 29 West Hill, Dartford, Kent DA1 2EL. Tel: 0322 92513.

Disk/Wafer Drives

Product	Features	Commodore Machine	Price	Guarantee	Company
1541	Single disk drive unit, provides greater storage capacity (170 Kbytes) – faster retrieval than a cassette unit	64	£199.99 (with dot matrix printer)	12 months	CBM UK
Wafer drive	High speed load	64	£59.95		Micropride
Triton Quick	Disk drive – takes 8 secs. to load a 48K program	64	£119.95	12 months	Radofin
Quick Data Drive	Quick loading, uses an endless loop of video quality tape	64	£49.95	12 months	Dean
Enhancer 2000	2½ times faster than the 1541 only on the raw data transfer	64	£229.95		Commotion
1571	Double-sided, fast access times, quiet in operation, half height	128	£249	12 months	Commodore

Review

With the launch of its new computer – the 128 – Commodore has at last taken a large step forward by releasing the 1571 disk drive to compliment the system (though totally compatible with the 64, to realise its full potential you must use it in conjunction with the 128). The 1571 in comparison to the 1541 is an absolute work of art. Neatly shaped and finished in a subtle shade of beige, it matches well the 128, as does its performance.

Using the DOS commands of 128, accessing the drive is exceptionally easy. Cataloging the disk is now handled by the command DIRECTORY and there are also commands to format and verify the drives.

Unlike business machines the 1571 holds 340k of formatted information on the two sides. However, the two sides cannot be accessed individually and in fact in all respects are as if they were on one side of a disk twice the capacity of the 1541.

In 64 mode it can handle a maximum of 300 characters per second, but this is a failing in the serial port of the 64, as in 128 mode it can load a program at 5200 characters (nearly 5.5k) per second.

In a comparison test carried out by CCI the following times were recorded:—

To load a 20k program.

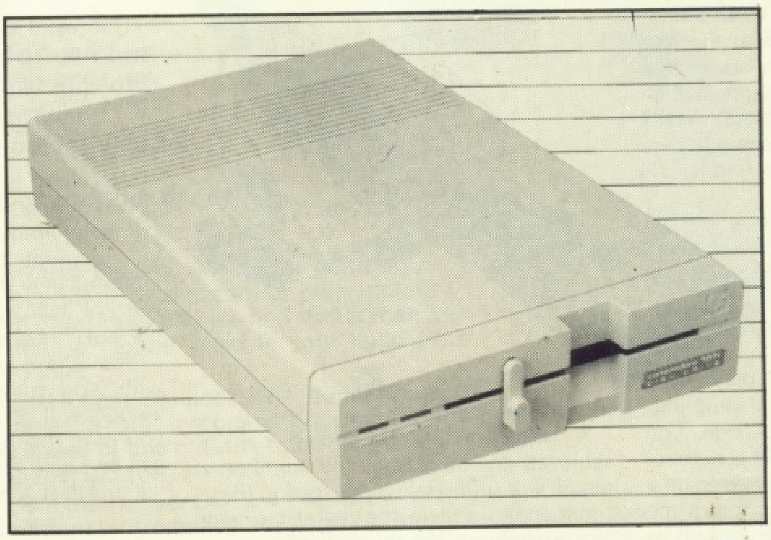
1541 .... 21 seconds
1571 .... 3.5 seconds

As is obvious the time difference is quite phenomenal!

The 1571 can also read CP/M files – essential for use with the 128 – in which the maximum transfer rate is also 5200 characters per second.

Although only available as a single drive at the moment, up to four 1571's can be linked together – although to copy from one to the others you will need the DOS utilities disk, which will become available through Commodore. Other companies will undoubtedly also release equivalents. Eventually, however, Commodore might release a twin model which is at the moment under development.

Overall the 1571 is an amazing forward leap by Commodore and has shown that it is possible to use the serial port for high speed data transfer – a fact which some of us were beginning to doubt!



COMMODORE
"SWEET TALKER"

SWEET TALKER
commodore 64
SWEET TALKER

THE CHEETAH "SWEET TALKER" JUST PLUGS INTO THE BACK OF THE COMMODORE 64 BASED ON AN [illegible] ALLOPHONE SYSTEM, YOU CAN EASILY PROGRAM [illegible] ANY WORD, SENTENCE OR PHRASE CREATING EXCITING SPEECH AND BROADCASTING IT THROUGH YOUR T.V. FULLY CASED, TESTED AND GUARANTEED.

THE "SWEET TALKER" COMES COMPLETE WITH DEMONSTRATION TAPE AND FULL EASY TO FOLLOW INSTRUCTIONS.

Mind blowing at only £24.95

THE AGE
OF
THE R.A.T

CONVENTIONAL JOYSTICKS ARE DEAD!

The Cheetah Remote Action Transmitter is the most sophisticated computer contoller available

It has these features:

- InfraRed transmission–so there are no leads trailing across the living room. Just sit back in your chair up to 30 feet from your machine.
- Touch control–no moving parts, extremely fast, long life.
- No extra software required.
- Can be used with all Commodore Joysick software.
- Fits comfortably in your hand for long play periods.
- Comes complete with receiver/interface unit which simply plugs into the rear of your Commodore.

***Simply incredible at* £29.95**

MACH 1

The Number 1 Joystick for Christmas

★ **Features**

★ **Trigger Fire Button–**
Provides ease and comfort for the trigger finger.

★ **Top Fire Button–**
Fits the thumb for sure fire shooting.

★ **Base Fire Button–**
For extra control and two hand firing.

★ **Auto Fire Switch–**
Provides continuous shooting at the touch of the fire button.

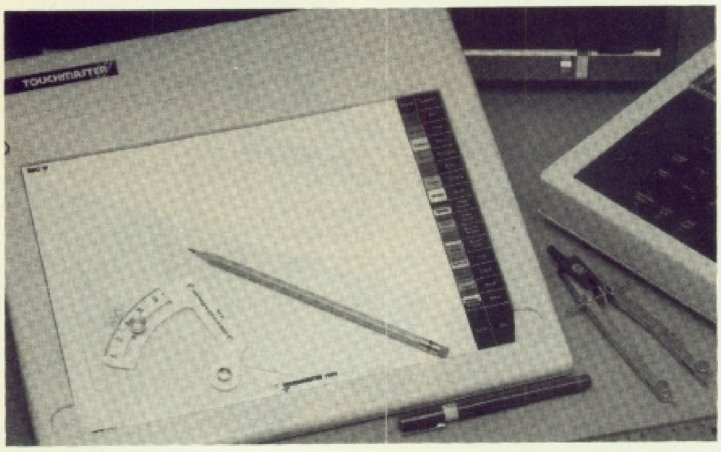
★ **Moulded Handgrip–**
For maximum comfort and ease of operation.

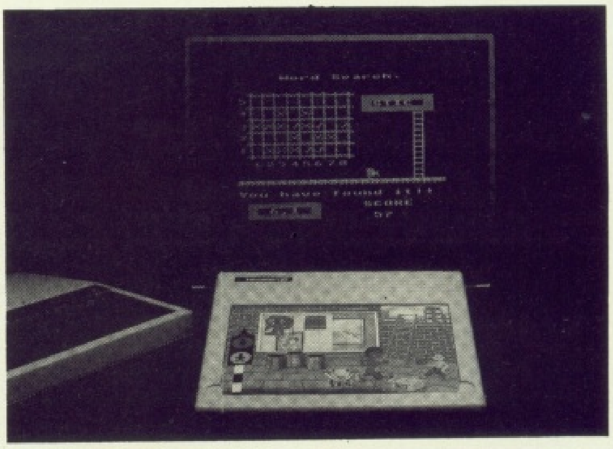
★ **12 Month Warranty–**
To underline our quality commitment.

Prices include VAT, postage & packing.
Delivery normally 14 days.
Export orders at no extra cost.
Dealer enquiries welcome.
Cheetah, products available from branches of
John Menzies Boots WHSMITH
Rumbelows WOOLWORTH Spectrum
dealers and all good computer stores.

Cheetah Marketing

Cheetah Marketing Ltd,
1 Willowbrook Science Park,
Crickhowell Road, St Mellons, Cardiff.
Tel: (0222) 777337. Telex: 497455


TOUCHMASTER


Word Search
You have found
SCORE

Graphics Tablets

	Features	Commodore Machine	Price	Guarantee	Company
Grafpad II	Use to design circuit diagrams, mechanical engineering & kitchen designs, in general CAD packages	All	£44.95 (interface £23.95)	6 months	British Micro
The Touchmaster	A4 size surface which generates coordinates. Free graphics program, can fit different overlays	All	£99.00 (including interface, pad, stylii & overlay)	12 months	Panorama
Paintbox	Graphics creator program containing latest drawing facilities. Full selection of brush sizes & colours	All	£9.95		Audiogenic
Super Sketch	Graphics tablet with many features, which comes complete with Starter Kit	64	£51.95	12 months	Anirog

TANDATA
FOR

APPROVED
for use with
telecommunication systems
run by British
Telecommunications
in accordance with the
conditions in the
instructions for use

Tandata SMART MODEM MICRO PACK
Tandata SMART MODEM MICRO PACK
VIEWFAX
FROM ONLY
£99.00
INC VAT AND CARRIAGE
Tandata Tm 110

Tandata's complete communications package for the Commodore 64 includes a Tm 110 smart auto-dial modem and matching Micropack complete with software, cable and instruction manual.

In short, everything you need to turn your 64 into an instant powerful viewdata terminal. You can access Prestel, including Micronet 800 and Viewfax, download telesoftware programmes – many of them free of charge, shop by post and carry out home banking. You can even send and receive messages and telexes.

CBM 64

And Tandata's special Christmas promotion of only £99 (plus VAT & Carriage) saves you £42 off the usual price!

INSTANT AUTODIAL

Plug the ROM cartridge into your CBM 64,

Review

Graphics packages for home computers, such as the 64, come in all shapes and sizes. Anirog has produced a package which is well-suited for the newcomer to computer graphics.

Called Super Sketch, it comes in the form of a graphics tablet, a sensing device which electronically senses the movement of the control arm and translates that movement to the television or monitor screen.

Setting up is very straightforward, all you do is plug the cord from the graphics pad into control port (joystick) 1. Software is available on disk (£51.95) or cassette (£49.95).

The Super Sketch tablet is constructed of rigid white plastic. A clear plastic control arm moves the pen holder around the tablet. You can place a pencil or other drawing utensil through the pen holder.

Paper is held in place by clamps which are released by the release bar at the head of the tablet.

Anirog has thoughtfully included a Starter Kit — a collection of line drawings which can be held in place by clamps on the tablet. This is very useful to help you explore the many features of the package.

From the main menu you select the required option/colour by moving an arrow down with the control arm and then pressing the button marked Select. Lift exits you from the menu. A cursor designates the spot where you are drawing. Under this you will see a letter indicating your current mode of operation, eg 'd' for draw.

Pressing the Lift button (there are two — catering for both left and right-handed people) enables you to move the control arm without drawing on the screen, or to return to the drawing from the menu.

Pressing Menu stops on-screen activity while the menu appears on the left of the screen.

SUPER SKETCH
CREATE SUPER VIDEO GRAPHICS
OWNER'S MANUAL

The many features include: colours, clear, draw, swap (to change a colour on a drawing), fill, eraser, undo (returns screen to last condition on leaving menu mode), page 1/page 2 (for independent drawings), expert (which leads you into a further menu for rays, circles, etc).

You have a choice of brush and a choice of design. The list goes on to cover all the elements required to produce quite spectacular pictures.

In the expert mode you can save or load your works of art very easily. The program even formats your disk/cassette for you.

Super Sketch contains all the options you could ask for. I particularly like the H and V commands which draw horizontal and vertical lines on the screen — freehand straight lines are not the easiest thing to draw.

Another advantage of a graphics tablet is that you can rest it on a desk top or even on your lap for comfort, whereas when using a light pen your arm tends to tire very easily.

Contact: Anirog, 29 West Hill, Dartford, Kent DA1 2EL. Tel: 0322 92513

Keep this Guide!

When you choose a peripheral for your computer make sure you check up in this and next month's following section of the CCI Guide to peripherals. If you write or telephone an order for a peripheral to the manufacturers listed here be sure to mention you saw it in the CCI Guide. It will ensure you get the best service.

COMMUNICATIONS YOUR 64.

connect it to the Tm 110 modem, and you're ready to go. Autodial up to 8 telephone numbers with a single keystroke – the modem will automatically log-on to Prestel, or re-dial if the number is unobtainable. The internal loud speaker, LED's and screen messages monitor call progress of the built-in V23 (1200/75 bps) smart modem.

COMPLETE SOFTWARE FEATURES

The software, instantly available when you switch on the cartridge, covers virtually all your communications requirements. Full colour Prestel, or conventional scrolling terminal, with its own editor for easy off-line message preparation. Pages and data can be stored to disk/cassette or recalled and can be printed. Programs can be downloaded using the telesoftware downloader.

It's ideal for Prestel, Micronet 800, Viewfax 258, private viewdata systems, Easylink, Telecom Gold and many Bulletin Boards.

FULL SUPPORT

A telephone Help Disk gives you full support, and an Installation service is available for business customers.

To order your sample Tandata communications package of modem and software and all leads for your 64 or to find out more, simple complete the coupon.

Tandata
Tandata Marketing Limited
Albert Road North, MALVERN, Worcs. WR14 2TL.
Telephone: 06845 68421. Telex: 337617 Tandat G.
Prestel*799# Telecom Gold 81 : TANOOI

Please send me a Tandata complete communications package for the Commodore 64 at £116.15 (including VAT and carriage)

I enclose a cheque made payable to Tandata Marketing Ltd. OR charge my ACCESS/VISA number

Expiry Date

I would like further details on your Commodore 64 communications package ☐ (please tick)

Name

Address

Send to:
Tandata Marketing Limited,
Albert Road North,
Malvern, Worcs. WR14 2TL.

Prestel is a registered trade mark of British Telecommunications plc. Micronet 800 is the trading style of Telemap Ltd. and British Telecommunications plc.

CCI/03

Review

The QUICK DATA DRIVE is a tape streamer device for the Commodore 64 and comes with three wafers and operating manual. It plugs into the cassette port and there is provision on the rear of the unit for daisychaining additional drives or maintaining the use of the ubiquitous cassette unit.

The three wafers consist of a blank, a game and an operating system master called QOS (Quick Operating System). The documentation consists of a 38-page user manual and a game leaflet. The manual has been written to a high standard of comprehension and certainly the author is to be congratulated. A full explanation of each command, connecting up, memory maps and a section on questions and answers is given.

To initialise the drive a wafer is inserted and in direct mode a command is given to LOAD from the cassette unit (device no. 1). The drive then boots up the operating system and in effect acts as a shadow cassette using device number 1. The wafers can only be inserted the correct way up, and since these are not much larger than a matchbox they presented no storage problems.

The command syntax of QOS will be familiar to disk drive owners. Cassette users may feel overwhelmed at first, particularly where their machine has the cassette as the default storage device and half of the command work has been done for them already.

The operating system boots up by holding a program which emulates a C2N to the machine in use. This then autoloads and runs the main QOS program. A utility program called FMU, (File Management Utility) is supplied as part of QOS and is user selectable. This is a powerful little number since it allows file transfer between disk, wafer and tape in any combination involving the wafer. FMU is required when using a new wafer since formatting is necessary. FMU also allows the use of a wafer directory. QOS and FMU support either sequential or program files, although in theory, relative files should be possible if the system can support sequential files.

However, below the surface, matters looked somewhat different. The QOS source code resides at $49152, probably the most overworked section of RAM in any Commodore 64. FMU resides in the RAM beneath the BASIC ROM at $A000 and is accessed on interrupt, so why choose $49152 for QOS? A better choice would have been under the KERNAL ROM at $E00, again using interrupts.

Unfortunately QOS is not easily relocatable since it contains a jump table near the start of the code, so unless your assembler contains a jump table and subroutine renumber mode, relocation is going to be a tedious affair. Further examination of the QOS source code revealed several lengths of NOP's. If these are to be found in a commercial program I can only draw the conclusion that the programmer has either failed to write correct timing loop delays or is wasteful of MY machines memory. In any event it is unprofessional programming and inexcusable in a proprietry program.

Source code aside, QOS and FMU worked very well.

I would recommend the Quick Wafer Drive as a strong alternative to cassettes. However, the drive is overpriced at £99.99 including VAT. I certainly intend buying one, but not at the current price.

Contact: Dean Electronics Ltd, Glendale Park, Fernbank Road, Ascot, Berkshire SL5 8JB. Tel: 0344 885661.

Companies

Anirog Software Ltd.,
Unit 10,
Victoria Industrial Park,
Victoria Road,
Dartford, Kent.
Tel: 0322 92513

British Micro,
Penfold Works,
Imperial Way,
Watford WD2 4Y1.
Tel: 0923 48222

Panorama Office Systems,
Unit 9,
Beglan Industrial Park,
Port Talbot,
West Glamorgan SA13 7DJ.
Tel: 0639 820310
(Touchmaster merged
with Panorama)

Lightwave Leisure Ltd.,
2 Maldwyn Road,
Liscard,
Merseyside L44 1AL.
Tel: 051-6395050

Spectavideo Ltd.,
165 Garth Road,
Morden,
Surrey SM4 4LH.

Central Trade Exchange Ltd.,
Ashton Lodge,
Ashton Road,
Dunstable,
Beds. LU6 1NP.
Tel: 0582 64334

Cheetah Marketing Ltd.,
1 Willowbrook Science Park,
Crickhowell Road,
St. Mellons,
Cardiff.
Tel: 0222 777337

Dean Electronics Ltd.,
Glendale Park,
Fernbank Road,
Ascot, Berks. SL5 8JB.
Tel: 0344 885661

Radofin Electronics,
4th Floor, Hyde House,
Hyde, NW9 6LG.
Tel: 01-205 0044

Atari Corporation,
P.O. Box 555,
Slough,
Berks.
Tel: 0753 33344

Vulcan,
200 Brent Street,
London NW4 1BH.
Tel: 01-203 6366

Cookridge Computer Supplies,
P.O. Box 1W9,
Leeds LS16 6RE.
Tel: 0532 670625

EEC Distributions Service Ltd.,
14 Western Parade,
Barnet,
Herts.
Tel: 01-441 1722

Commotion Ltd.,
241 Green Street,
Enfield.
Tel: 01-804 1378

Micropride,
Unit 16/17,
Shipyard Industrial Estate,
Brightlingsea
Essex.
Tel: 020 630 4957

Datapen Microtechnology,
Kingsclere Road,
Overton,
Hampshire RG25 3JB.
Tel: 0256 770488

Voltmace,
Park Drive,
Baldock,
Herts.
Tel: 0462 894410

Kempston Micro Electronics Ltd.,
Singer Way,
Kempston,
Bedford MK42 7AW.
Tel: 0234 856633

SMC Supplies,
11 Western Parade,
Gt. North Road,
Barnet, Herts.
Tel: 01-441 1698

Audiogenic Software Ltd.,
Unit 39,
Suttons Industrial Park,
London Road,
Reading RG6 1AZ.
Tel: 0734 664646

CBM UK Ltd.,
1 Hunters Road,
Weldon, Corby,
Northants.
Tel: 0536 205252

Trojan Products,
166 Derlwyn,
Dunvant,
Swansea SA2 7PF.

Dynamics Marketing Ltd.,
Unit 2,
Franklin Street,
Oldham, Nr. Manchester.
Tel: 061-626 7222

Connexions

Magic Mouse

For the Commodore 64 £59.95

INC. VAT

- CREATE HI-RES GRAPHICS
- TRANSFORM YOUR OWN PROGRAMS
- COMES COMPLETE WITH DISC AND TAPE SOFTWARE – NO EXTRAS REQUIRED
- SOFTWARE INCLUDES HI-RES GRAPHICS PACKAGE, MOUSE CONTROLLER, SPRITE DESIGNER, ICON DESIGNER

Magic Mouse
Magic Mouse

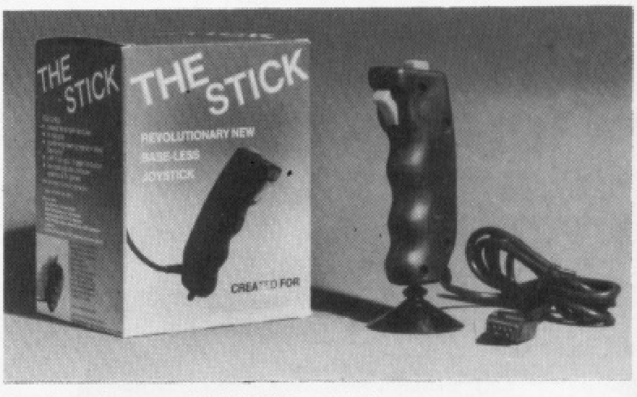
SMC SUPPLIES
11 Western Parade, Great North Road,
Barnet, Herts EN5 1AD
Tel: 441 1282, 441 1698, 441 0535.
Telex: 295181 SMC G

TRADE/EXPORT ENQUIRIES WELCOME

DEALERS PLEASE NOTE:
Magic Mouse is now available through
Lightning

Lightwave

LEISURE LIMITED



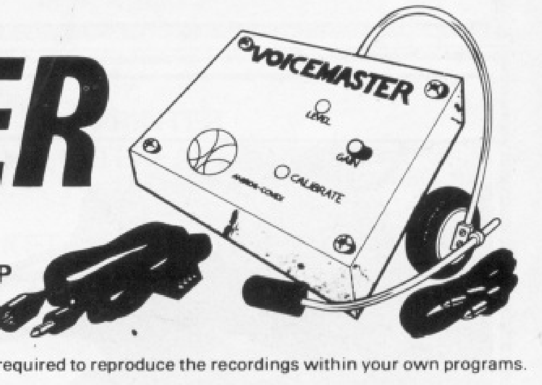
Beat all your high scores with THE STICK's extra fast response.

THE STICK, standard 9 pin D type connector (Item 16.010)	£12.99
Other COMMODORE 64/128 ACCESSORIES:	
EXPERIMENTAL TEST BOARD (Item 15.001) – exposes all data, address lines and pilot wires from Cartridge Port)	£4.99
8K ROM BOARD (Item 15.002)	£12.95
128K ROM BOARD (Item 15.003)	£34.95
EPROM BURNER (Eprom types 2732, 2764, 27128, 27256) (Item 15.004)	£54.95
DISC NOTCHER — makes any single sided 5¼" Disc into double sided disc — (Item 16.007)	£7.95
HIGH QUALITY ANTI STATIC DUST COVERS, VIC 20/C64 (Item 3.000)	£4.95
1541 Disc Drive (Item 3.002)	£4.95

Ask your local dealer or direct from: LIGHTWAVE
Please add £1 to value of your order for delivery via registered post. Cheque/PO payable to:

LIGHTWAVE LEISURE LTD.
PO Box 23, WALLASEY, MERSEYSIDE L44 1EW
Telephone: 051 639 5050

VOICE MASTER



THE ULTIMATE HUMAN-COMPUTER INTERFACE
SPEECH REPRODUCTION - SPEECH RECOGNITION - VOICE HARP

Cass. & Disk Version £59.95

SPEECH REPRODUCTION

Voice Master enables the computer to record your voice or any sound. However, the Voice Master is not required to reproduce the recordings within your own programs. Many U.K. software houses now use Voice Master to generate the speech in their own games.
Voice Master is easy to use with basic commands such as LEARN to record speech, and SPEAK to reproduce the recorded speech. Special effects, e.g. ECHO, are produced by the basic commands to alter the recording rates, playback speeds and volume control.

SPEECH RECOGNITION

Just imagine your computer being able to understand what you say! Store the words and phrases to be recognised using the TRAIN command. A highly sophisticated pattern matching algorithm is used for word recognition. Voice Master opens up new horizons in all types of application software, especially in the field of education.

VOICE HARP

A totally new musical concept! You can actually compose and perform music in real time simply by humming, whistling or singing. Your voice or whistle pitch actually writes the notes for you, including duration and rests. A comprehensive editing facility allows you to change octaves, musical keys or add chords. There is a choice of fifteen instruments on which to play your musical masterpiece.
VOICE MASTER comes complete with a quality head-set, incorporating microphone and earphone (similar to the type used by pilots) and powerful software on cassette and disk.

. . . . . REVIEWS . . . . .

"Anirog's latest product is a mind-boggling box of tricks. If you've ever wanted a voice synthesiser that sounds like a civilized human being, then this is the peripheral for you. Unbelievable as this may seem, the system works so effectively that even my dogs recognised my voice issuing from the TV set! I am totally knocked out with this product and no words can describe my admiration. If you own a 64 then buy this - you won't regret it!" . . . . . . HOME COMPUTING WEEKLY

"The sampling of voice cannot be any better quality, without additional hardware to govern hi-quality output. As a piece of program development, hardware, computer/human interface, up-to-date games design hardware, it is an essential buy for 1985. No 64 should be without one." . . . . . . YOUR COMMODORE

"The whole system seems very well put together and functioned with no problems at all. Voice Master has impressive potential; for control of electrical equipment, security, word games and so on. The potential of the device is only limited by your imagination. An amazing device." . . . . . . COMMODORE HORIZONS

"The Manual - The information provided is of an extremely high standard. The product surprised me thoroughly and I am very pleased with it. Rush out and buy one!" . . . . . . COMPUTER GAMER

"Anirog's Voice Master is something of a breakthrough in several fields. The whole unit is very professionally put together. Overall, an innovative and imaginative product, with which many Commodore 64 owners will want to experiment." . . . . . . POPULAR COMPUTER WEEKLY

"This is a fascinating add-on which will give hours of fun. It brings into the province of the home users a field of interest formerly reserved for those with a few thousand pounds to play with." . . . . . . YOUR COMPUTER

TRADE ENQUIRIES: ANIROG SOFTWARE LTD UNIT 10 VICTORIA INDUSTRIAL PARK VICTORIA ROAD DARTFORD KENT (0322) 92513/8 TELEX 892758 ANIROG G

MAIL ORDER: Payment by P.O. - CHEQUE - ACCESS - VISA. 8 HIGH STREET HORLEY SURREY
(HORLEY) 0293 786083 - 24 HOUR CREDIT SALES

ANIROG

A QUALITY LIGHT PEN

SUPERIOR PERFORMANCE

- Absolutely insensitive to ambient lighting.
- Responds to different colours and screen intensities without any adjustment of TV or monitor.
- Red LED readout showing that data is available.
- Switch for program control (allows pen to approach the screen without erroneous data capture)
- All features are Program accessible

SUPERIOR PROGRAMS

- Good Documentation
- Tape storage of your work
- User routines provided on tape and printout
- 'Freehand' drawing program
- 'Library menu' drawing program (define your own library of shapes)
- Example programs illustrating uses of the pen and its features

£25 inclusive of P&P. NOW ALSO FOR CBM 64
Please state DRAGON, BBC or VIC-20 when ordering.
Send cheque or P.O. for £25 to:

Dept. CI Datapen Microtechnology Ltd, Kingsclere Road, Overton, Hants RG25 3JB, or send SAE for information sheet.

NOW ALSO AVAILABLE FROM GOOD COMPUTER STORES.

Datapen Microtechnology Limited

QUICK DATA DRIVE
QUICK DATA DRIVE

THIS MONTH ONLY ADD-ON FEATURE SPECIAL PRICE

QUICK DATA DRIVE

FOR COMMODORE 64 & VIC 20 **£64·95**

A fast load/save system using Entrepo Microwafer and Q.O.S. (quick operating system). Can be stacked with another Quick Data Drive, Disk Drive or Data Cassette.

Length (ft.)	Capacity (1 File)	Ave. Access Time (secs)
10	25K	8
20	53K	17
✱ 35	92K	31
50	138K	44
✱ 62	170K	55

✱ IN STOCK

SOFTWARE:-
DATABASE & SIMPLE SPREAD SHEET £12·99
ACCOUNTS (UNDER DEVELOPMENT) £TBA

DEALER ENQUIRIES WELCOME

WALRUS HI-TEC

3/4 The MEWs,
Brook Street,
Mitcheldean,
Glos. GL17 OSL

(0594) 542558

Terms: Cash with order (inclusive of VAT, P&P)

For work or play Voltmace has the answer!

Made in England

If you havn't tried the light, fast action of the DELTA 3S, then it's time you did; you'll still be knocking up the high scores long after the other aching wrists have retired. And Strong – at an exhibition this year we used Decathalon as a demonstration game – there's confidence for you!!

The new DATAPAD 16C is in a strong metal case, with even better keys to withstand commercial use and at very little price increase. It still plugs in externally and comes complete with software to define the keypad to your choice of layout.

DATAPAD 16C	*£34.95*
DELTA 3Sc JOYSTICK	*£10.00*

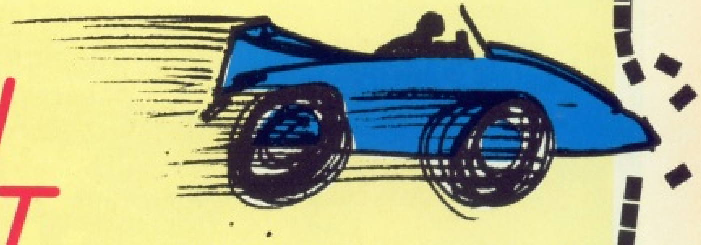
Prices include VAT and P&P.

Send cheque or P.O. to–
Voltmace Limited
Park Drive
Baldock
Herts
SG7 6EW
Telephone (0462) 894410

Voltmace *datapad 16c & delta 3sc*

Callers welcome at the factory—Monday to Friday. *Dealer terms available.*

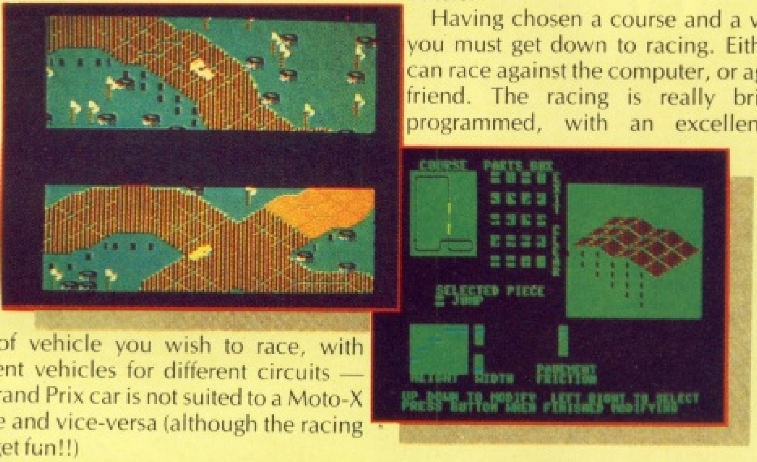
RACING DESTRUCTION SET



It's not the kind of game that would convert well to computers, or that was my first thought when I was told that this was a version of Scalectrix, but how wrong could I be!!

Ariolasoft have imported this brilliant game from Electronic Arts, an American software house, and I really hope it's a success.

The game involves you choosing what type of vehicle you wish to race, with different vehicles for different circuits — the Grand Prix car is not suited to a Moto-X course and vice-versa (although the racing does get fun!!)


COURSE
PARTS BOX
SELECTED PIECE
HEIGHT
WIDTH
PAVEMENT
FRICTION
UP DOWN TO MODIFY LEFT RIGHT TO SELECT
PRESS BUTTON WHEN FINISHED MODIFYING

You have over 50 tracks to choose from which are already on the games disk, and even more interestingly you are allowed to define your own track using jumps, cros-sovers, chicanes and a wide variety of others.

Having chosen a course and a vehicle, you must get down to racing. Either you can race against the computer, or against a friend. The racing is really brilliantly programmed, with an excellent split screen display and really good scrolling around a nicely defined choice of backgrounds.

There are two types of racing, destruction or normal. As its name suggests, destruction means you have to stop your competitor finishing before you, using oil and other dastedly means!!

The actual control of the vehicles is neatly done, with accelerator and brakes, as well as the control to swop from one lane to the other.

If you, like me, are getting a bit bored with Pole-position games then this will come as a real relief. If you buy it you won't regret it!

Fast Loader: Yes
Graphics: ****
Sound: ****
Playability: ****
CCI Rating: ****
Price: £12.95 cassette, £14.95 disk.
Contact: Ariolasoft, Asphalte House, Palace Street, London SW1. Tel: 01-834 8507.

SUPER GRAPHIX

PRINTER INTERFACES

FOR COMMODORE 64 AND VIC 20 MICROCOMPUTERS
UNLIKE ANY OTHER PRINTER INTERFACES ON THE MARKET THESE AMAZING PRODUCTS CONVERT STANDARD DOT MATRIX PRINTERS TO NEAR LETTER QUALITY!

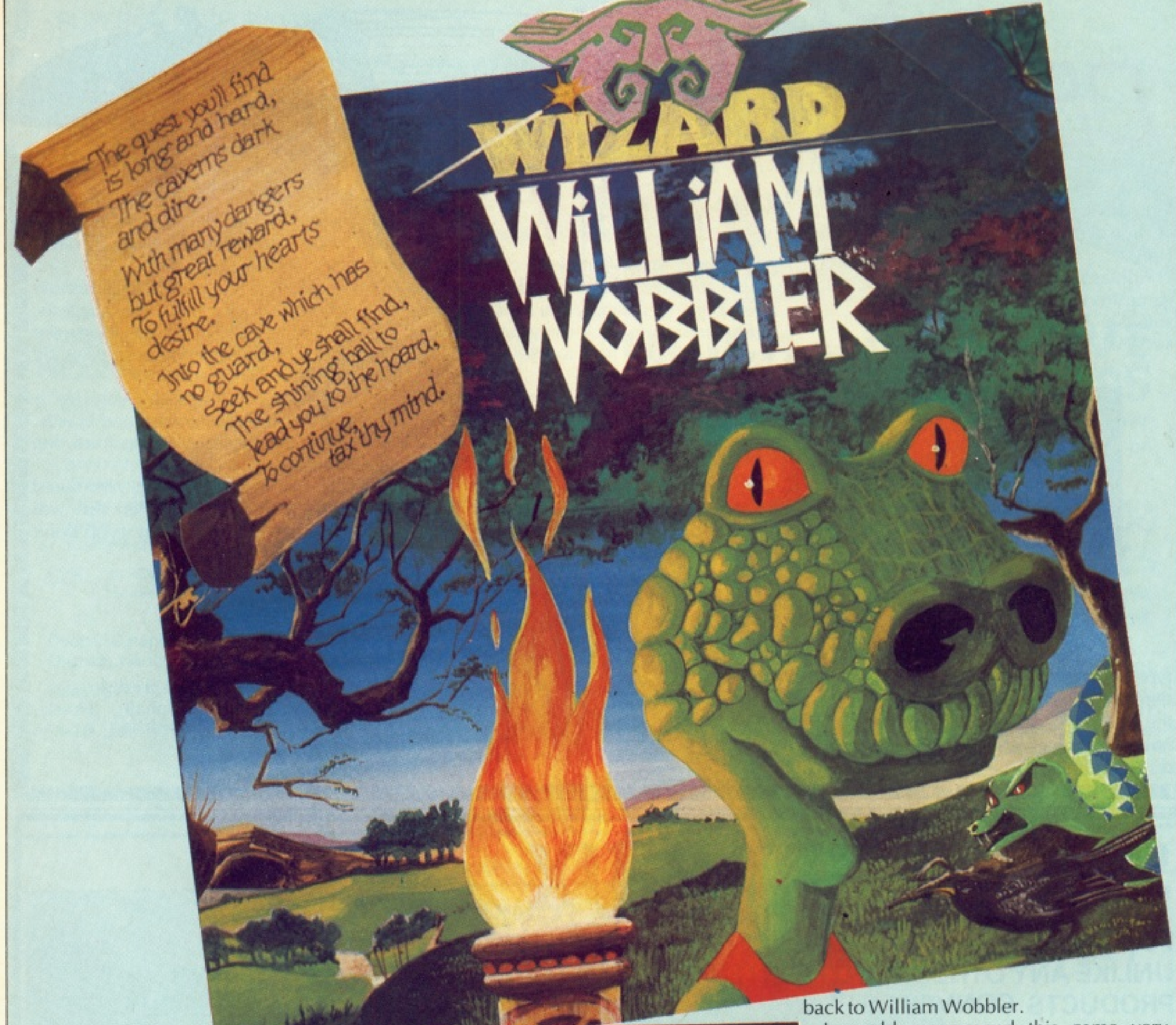
CHECK THE OTHER FEATURES BELOW!

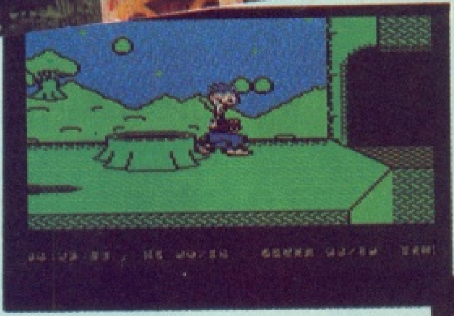
★ ★ STOP PRESS ★ ★
NOW AVAILABLE FOR
CBM 128K

SUPER GRAPHIX jnr
☐ MICRO BUFFER
☐ GRAPHICS & NORMAL QUALITY PRINT
☐ NEAR LETTER QUALITY
☐ 8 OCTAVE SWITCHES WITH CHANGES CONSTANTLY MONITORED
☐ COMMAND CHANNEL
☐ 10 PRINTER MODES
☐ CENTRONICS COMPATIBLE
☐ SUPPORT MOST MAJOR PRINTERS
☐ 100% COMPATIBLE WITH SOFTWARE FOR VIC 1525 PRINTER
☐ USER MANUAL & SOFTWARE EXAMPLES
PRICE **£49.95** (inc. VAT) Post & Packing **FREE**

SUPER GRAPHIX
☐ 8 K BUFFER STANDARD
☐ 10 PRINTER MODES
☐ 3 INTERNAL SCREEN DUMPS
☐ EXTENSIVE COMMAND CHANNEL
☐ RESET BUTTON TO HALT PRINTING FROM BUFFER
☐ NEAR LETTER QUALITY MODE BUILT IN
☐ CAPABLE OF STORING 2 ADDITIONAL FONTS
☐ CORRECT GRAPHICS / TEST ASPECT RATIO FOR ALL MAJOR PRINTERS
☐ 8 OCTAVE SWITCHES WITH CHANGES CONSTANTLY MONITORED
☐ INTERNAL FONTS SUPPORT, SUPER SCRIPT, SUB SCRIPT, UNDERLINING, BOLD FACE AND CHOICE OF 9 PITCHES
PRICE **£69.95** (inc. VAT) Post & Packing **FREE**

Available Only Through Exclusive Importers & Distributors
Screens Microcomputer Distribution
Main Avenue, Moor Park, Northwood, Middlesex. Tel: 09274 20664. Telex: 923574 ALACOL G


The quest you'll find
is long and hard,
The caverns dark
and dire.
With many dangers
but great reward,
To fulfill your hearts
desire.
Into the cave which has
no guard,
Seek and ye shall find,
The shining ball to
lead you to the hoard,
To continue,
tax thy mind.
WIZARD
WILLIAM
WOBBLER



WILLIAM WOBBLER

The life and times of Tony Crowther will probably one day be a book. He has managed to write games software for more software companies than most other programmers put together. His fame was gained by writing very high quality scrolling games such as Loco, and together with Jeff Minter he has managed to maintain his reputation irrespective of criticisms.

His newest game, for a newish software house called Wizard is bound to enhance his reputation, and deservedly so.

In William Wobbler you take the role of a cute man (eh??) and you must travel around an under and overground world, discovering clues which will hopefully lead to a £1000 prize.

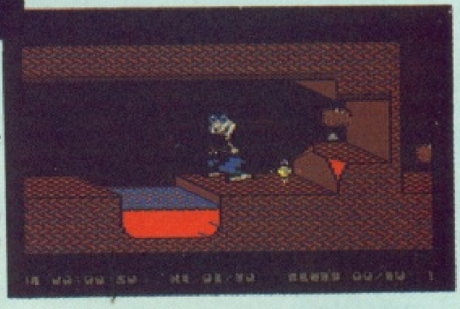
The graphics are really lovely, with the man being not the usual minute size, but large and clean. The scrolling is up to Crowthers usual standard, and although very difficult to get the hang of the game, your interest is sustained by catchy theme tunes.

As a game it is addictive and annoying, even when you do manage to grab an object it is not always clear what to do with it.

One thing I did discover, unexpectedly, was a 'game within a game' when, whilst discovering the right hand end of the maze I found myself playing a vertical shoot-em-up, but just when I realised what was happening I died and the game reverted back to William Wobbler.

I would recommend this game very highly, it's fun and obviously holds lots of secrets which will keep its playability for a long while. If this doesn't shut Mr Crowthers critics up, nothing will. Anyway, you might be the one to win the prize!! **FKJ**

Fast Loader: Flashload
Graphics: ****
Sound: ****
Playability: ****



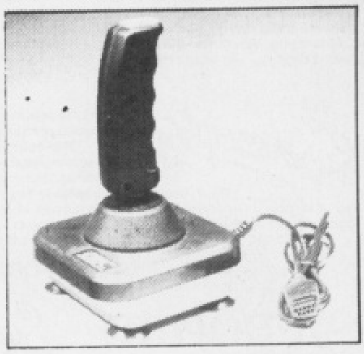
CCI rating: ****
Price: £10.95 cassette, £14.95 disk.
Contact: Wizard Develoment Ltd, Alpha House, 10 Carver Street, Sheffield S1 4FS. Tel: 0742 752912.

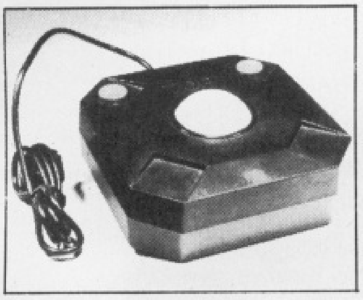
MICROPRIDE LTD.

COMPUTEK JOYSTICK

Suitable for use with Commodore 64, Vic 20 and Atari	**£9.95**
For use with Oric/Atmos Oric Interface required	**£11.50**
For use with Spectrum ZX81 Interface required	**£7.95**

Tip Fire Button and side fire button fast action.



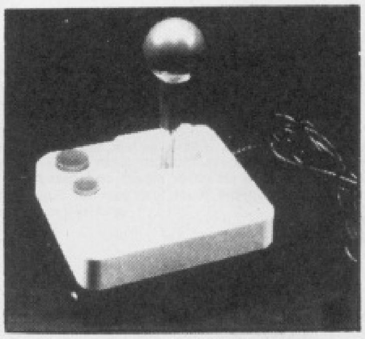


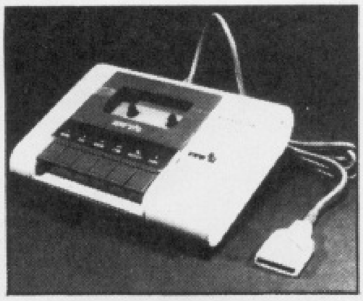
TRACKBALL

Improve your scores and skills with the Computek Trackball. Suitable for use with Commodore 64, Vic 20, Atari, Oric 1, Atmos and Spectrum use interface. **£17.95**

COMPUTEK JOYSTICKS

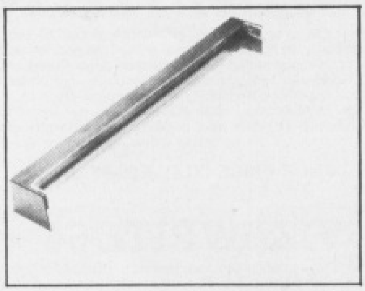
For use with the BBC Computer. Metal shaft, 2 fire buttons **£12.95**





PM C16 CASSETTE DATA UNIT

Designed for use with Commodore +4, Commodore 64 and Vic 20. This cassette unit is a device for storing and recalling computer programs on ordinary cassette tapes. It can be used for saving programs you have written and want to recall for later use. It can also be used to read pre-recorded programs that you have purchased. **£24.95**



DUST COVER

Clips onto the back of the Commodore 64. Pivits up to allow use of keyboard, fully moulded, clear plastic dust cover. **£7.95**

Please send me the following ....
I enclose my cheque/P.O. made payable to:

MICROPRIDE LTD for £..................

NAME ....

ADDRESS ....

....

* ALL PRICES INCLUDE POSTAGE & PACKING *

MICROPRIDE LTD.
UNIT 16, SHIPYARD INDUSTRIAL ESTATE,
BRIGHTLINGSEA, ESSEX CO7 0AR.

128

If you're as **impressed** as we are with the new **Commodore 128**, you'll be even more **impressed** with the new software that's appearing for it now! Already we've got **SuperBase 128** (~~£99.95~~ **£85.00!**), **SuperScript 128** (~~£79.95~~ **£69.95!**), and the amazing **VizaWrite Classic 128** (~~£99.95~~ **£89.00!**)... so watch this space!

Although we are by far **the largest UK retailer** of SuperBase, VizaStar and VizaWrite for the **Commodore 64**, for **over five years** we have supported the best software for **all the Commodore** business machines! So if you have a **CBM/PET 3000, 4000, 8000, 700** or **PC**, then don't forget us... we haven't forgotten you! Why not phone or write for our **CBM/PET catalogue?**

Superscript 64

All the features you'll ever need for **professional word processing**... and then more! Unrivalled **240-column** text handling, **variable width screen, word-wrap, cut-and-paste, four-way** scrolling, document linking for **unlimited capacity**, global **search-and-replace, help screen**, full memory **calculator**, row and column **arithmetic, menu** or **keyed** commands with **command strings, background printing**, complete **letter quality** print control, **spelling checker** with both UK and US **disk dictionaries**, comprehensive **four part** user manual...

ALL FOR ONLY ~~£69.95~~ £61.95!

1st BOOKS

The Anatomy of A Commodore 64	£8.95
The Anatomy of the 1541 Disk Drive	£8.95
Your '64 Cassette Book	£8.95
Tricks and Tips for your '64	£8.95
Machine Language Book for the '64	£8.95
'64 Advanced Machine Language	£8.95
Peeks and Pokes for the '64	£7.95
Commodore 64 Idea Book	£8.95
Graphics Book for your '64	£8.95

Super TYPE

Are you a **two-finger** typist? Then why not let **SuperType** help you learn to **touch-type** the fast and easy way... with your **computer as the teacher!** All the family can learn this useful skill, at their **own pace**... and profit from the very latest computer-aided **training** and **feedback** techniques! For only ~~£19.95~~ £17.95 on tape, or

ON DISK ~~£25.95~~ £22.95!

Superbase 64

Transform your **Commodore 64** into a full featured **professional** database system, with up to 1000 characters per record on up to **four screens**... and up to **128 items** per record, definable as **key, text, numeric, result** or **date**... in files of up to 16 million characters! **SuperBase 64** even has **calculator** and **calendar** functions, **easy input** from word processor or data files, both **menu-driven** and **program** control, **sorting** and **searching**, fully definable **report** and **screen** formats... **Superbase 64** is essential if you want the **most** from your 64! Supplied on 1541 disk with excellent tutorial and reference manual, plus **audio learning** tape...

NOW ONLY ~~£79.95~~ £69.95!

Jetpack

Your programs will really take off with **JetPack 64!** 100% compatible with CBM Basic, **Jetpack** compiles Basic programs into **machine code**, running up to **25 times** faster... using **up to half** as much memory! And it even accepts **Basic extensions** and **machine code** routines as well!

OUR PRICE (DISK) ~~£39.95~~ £29.95!

1st ASSEMBLER MONITOR 64

A powerful **2-pass assembler** allowing free-form input, with **31K free** for source code, assembling to **disk** or **memory**... plus loadable **symbol tables**, redefinable symbols, twenty **pseudo-ops, macros, conditional assembly** and unique 16-bit **expression evaluator**. The monitor has **15 commands** including **bank switching!**

(ON DISK) ONLY £19.99!

VIZASTAR 64

Spreadsheet, database and **graphics** too... all **integrated** into one amazing package, at an amazingly **affordable** price! The very latest design techniques combine the ultimate in **ease-of-use** with all the sophistication of a fully **integrated** product... VizaStar's advanced features include **high speed** maths functions, large **1000 by 64** worksheet, programmability, windows, cell protection, search and sort, text editing, wordprocessor compatibility, simultaneous graphics... integrated with a **1000-character** per record **database**, up to **250** characters per field... the **only** product of its kind for the **Commodore 64!** Suits most printers, supplied with excellent handbook. (XL8 version now available with a **40% bigger** spreadsheet plus **business graphics**)

OUR PRICE (XL4) ~~£99.95~~ £89.00! (XL8) ~~£129.95~~ £115.95!

VIZAWRITE 64

A **high-performance, low-cost** wordprocessor, with full **on-screen** formatting, that takes full advantage of the **colour, graphics** and **memory** capacity of the **Commodore 64**... that works with both **disk** and **tape**... and supports virtually **any** printer! With a concise and easy-to-follow user manual, **VizaWrite** is the **ultimate** personal computer word processor! Available on **cartridge** for ~~£89.95~~ £78.95, on **disk** for ~~£79.95~~ £67.95, or with **VizaSpell**, a **30,000 word** disk dictionary and spelling checker, for ~~£99.95~~ £85.00!

WANT IT TOMORROW??? CALL US TODAY!!! ON 01-546-7256

SIMON'S BASIC	~~£50.00~~	£35.95	FIRST WORD wordprocessor	£35.99
MASTER 64	~~£69.00~~	£39.95	FIRST BASE database	£35.99
JETPACK (tape)		£14.95	POWER PLAN spreadsheet	£44.99
SUPERBASE STARTER	~~£39.95~~	£35.95	BASIC 64 compiler	£34.99
EasyScript to SuperScript upgrade – send disk and manual cover		£39.95	PASCAL 64 compiler	£34.99
			ADA TRAINING COURSE	£49.99

Prices include VAT and POSTAGE and are correct on going to press. Order by post or phone, using cheque, Access, Barclaycard or postal order. Despatch is by same day 1st CLASS post. Product data available on request, or phone for advice if in doubt. [REF A34]

VISA

Calco Software

LAKESIDE HOUSE, KINGSTON HILL, SURREY, KT2 7QT. TEL 01-546-7256

DIMENSION computers l.t.d.

THE MIDLAND'S LARGEST HOME COMPUTER STORE

Service and Repairs

To Commodore 64's, Vic 20's, 1541 Disc Drives, MPS801, 1526, MPS802, and 1520 Printers.

Our comprehensive service offers fast, competitively priced repairs for Commodore owners, including:—

★ **PERSONAL TELEPHONE DIAGNOSTIC AND ESTIMATE SERVICE**

★ FREE RETURN INSURANCE, WITH NO HANDLING CHARGE

★ SIX MONTH GUARANTEE ON ALL REPAIRS

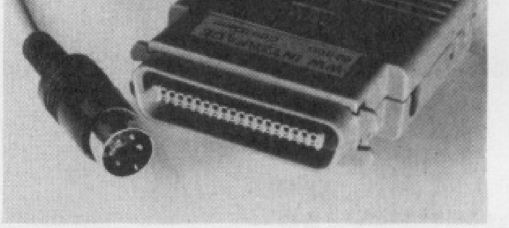
★ C2N HEAD ALIGNMENT;
£6.00 INCLUDING CARRIAGE

★ CALLERS WELCOME,
WITH WHILE-YOU-WAIT ESTIMATES

For more details, please ring
(0533) 57479/21874, Ext 23
Dimension Computers Ltd.,
27/29 High Street, Leicester LE1 4FP.

VISA

CENTRONICS INTERFACES



MODEL 92000/G – DOES IT ALL!

Full Commodore graphics and special characters, tabs, dot graphics etc.

£59.99

ALSO

MODEL 92000 – less graphics	£47.50
MODEL 92008 – less graphics, 8K buffer	£59.99

All models software transparent – no driver needed.
Connect to C64 or daisy-chain to disk drive.

FCC SYSTEMS LIMITED

THE LODGE
MOORLANDS ROAD
MERRIOTT
SOMERSET TA16 5NF
TEL: CREWKERNE (0460) 73442
PRESTEL MAILBOX 046073442

Please add P&P @ £1.00 and VAT to all orders

DEALER ENQUIRIES MOST WELCOME

TOP TWENTY

	GAME TITLE	CHANGE	COMPANY	PRICE (£)
1	Summer Games II	NEW	US Gold	9.95
2	Skyfox	NEW	Ariolasoft	9.95
3	Frankie Goes To Hollywood	DOWN	Ocean	9.95
4	Way Of The Exploding Fist	DOWN	Melbourne House	9.95
5	Beach Head II	NEW	Epyx/US Gold	9.95
6	Now Games	NEW	Virgin	8.95
7	Rescue On Fractalus	NEW	Activision	9.99
8	Speed King	NEW	Digital Intergration	9.95
9	Great American Cross Country Road Race	DOWN	Activision	9.99
10	Ghostchaser	NEW	US Gold	9.95
11	Hypersports	DOWN	Ocean	8.95
12	Cylu	NEW	Firebird	2.50
13	Battle of the Bulge	NEW	Argus	9.99
14	Karateka	NEW	Ariolasoft	9.99
15	Barry McGuigan's Boxing	NEW	Activision	9.99
16	SoftAid	DOWN	SoftAid	4.99
17	Stealth	NEW	Ariolasoft	9.95
18	Pitstop II	DOWN	US Gold	9.95
19	Tour de France	DOWN	Activision	9.99
20	Mig Alley Ace	NEW	US Gold	9.95

BUBBLING UNDER

Wizardry	The Edge	9.95
Blackwyche	Ultimate	9.95

Compiled by CCI from leading distributors

FOR THE COMMODORE 64 & 128

CHARTPAK-64 – Produces hi-res and graphs in any of 8 different formats. Data can be entered from keyboard or from Busicalc I, Multiplan or DIF files. Output to a wide range of printers. **£24.95 (on disk)**

VIDEOBASIC-64 – Development package adds more than 50 BASIC commands including hires, multicolor, sprite and turtle graphics, sound, memory management and more. Hardcopy to a wide range of printers. Runtime version of programs can be distributed free of royalties. Price reduced to **£34.95 (on disk)**

PASCAL-64 – A full compiler producing fast 6502 code. Compiled programs run independently. Extensions for hires graphics, sprites, and interrupt routines. **£34.95 (on disk)**

ANATOMY OF THE 1541 DISK DRIVE BOOK – Packed with information including complete ROM listing and several useful utility programs. **Now only £8.95.**

FOR THE VIC-20

Ten top quality games on one disk for only £9.95. Games on tape from **£1.99.** VIGIL — powerful games language including 75 page manual and 9 games for **£7.50 (disk £9.00).**

FOR THE COMMODORE-16 & PLUS 4

Our catalogue lists over 100 games, books and utility programs. Generous discounts.

Send stamp or sae for full catalogue (state computer).

ADAMSOFT

18 Norwich Avenue
Rochdale, Lancs. OL11 5JZ

ED40

46 THE MALTINGS, STANSTEAD ABBOTTS,
WARE, HERTS SG12 8HG

Commodore 64	RRP	OUR PRICE
Robin of Sherwood	9.95	6.99
Wizards Lair	8.95	6.50
Kareteka	9.95	7.50
Stealth	9.95	7.50
Castle of Dr.Creep	9.95	7.50
World Cup II	6.95	4.95
Trivia UK	7.95	5.95
Doughboy	9.95	6.99
Wizardry	9.95	6.99
Fightnight	9.95	6.99
Blue Max 2001	9.95	6.99
Who Dares Wins (sub to avail.)	7.95	5.95
Kennedy Approach	14.95	11.95
Whirlinurds	9.95	6.99
The Chess Game	7.95	5.95
Kickstart	1.99	1.99
A View to a Kill	10.99	7.99
Beach Head 2	9.95	6.95
Beach Head 2 (Disk)	14.95	11.95
Bladerunner	8.95	6.50
Cylu	2.50	1.75
Dam Busters	9.95	6.95
Elite	14.95	9.95
Fourth Protocol	12.95	9.90
F. B. Boxing	7.95	5.50
Frankie G.T. Hollywood	9.95	6.90
Ghost Chaser	6.95	6.99
Hypersports	8.95	6.25
International Karate	6.50	4.75
Sky Fox (tape)	9.95	7.25
Nick Faldo's Golf	9.99	6.95
Rockford's Riot	9.99	6.90
Exploding Fist	9.95	6.90
Quake Minus One	9.95	6.99
Rupert	7.95	5.95
D.T. Superfast	7.90	5.80
Sabre Wulf (Ult/Firebird)	9.95	7.50
Underwurlde	9.95	7.50
Speed King	9.95	6.99
Summer Games II	9.95	6.95
Summer Games II (disk)	14.95	11.95
Steve Davis Snooker	8.95	6.50
Super Zaxxon	9.95	6.99
Robin of Sherwood	9.95	6.99
Now Games (compliation)	8.99	5.99
55 (compilation)	4.99	3.75
Blackwych (Ultimate)	9.95	6.99
Terrormolinos	7.95	5.90
Barry McGuigan's Boxing	9.99	7.20
Rescue on Fractulus	9.99	7.30

Commodore 64	RRP	OUR PRICE
Rescue on Fractulus	9.99	7.30
Red Arrows	8.95	6.50
Great American Race	9.95	6.99
Tour de France	9.99	7.20
Nodes of Yesod	9.95	6.99
Clumsy Colin	1.99	1.80
Confuzion	6.95	5.20
Drop Zone	9.95	6.99
Graham Gooch's Cricket	9.95	6.99
Intermat Tennis	5.95	4.50
Jet Sally Willy 2	8.95	5.75
Battle of the Bulge	9.95	6.99
Rocky Horror Show	8.95	6.50
Mr Do	9.95	6.95
Pit Stop 2	9.95	6.99
Shadowfire	9.95	6.90
Thing on a Spring	7.95	5.90
Mini Office	5.95	4.50
Never Ending Story	7.90	6.80
Street Hawk	7.90	6.80
Starion	7.95	6.50
Mig Alley Ace	9.95	6.99
Mercenary	9.95	6.99
Commodore 6		
Daley Thompson Star Events	6.95	5.20
World Cup	6.95	5.25
Gremlins	7.95	5.95
Hustler	5.95	4.99
Petals of Doom	6.95	4.95
Blagger	6.95	4.99
A.C.E.	9.95	7.95
Tycoon Tex	6.95	5.25
Timeslip	6.95	5.25
Wizard and the Princess	6.95	5.25
Classic Adventure	5.95	4.95
Super Gran	9.95	7.95
Olympic Skier	6.95	5.95
Out on a Limb	6.95	5.25
Psychedlia	6.00	4.95
Bargain Basement		
Joust	7.95	2.99
Stringer	7.95	1.99
Blockbusters	7.95	2.99
Brian Jacks Superstars	8.95	3.99
Spiderman	9.95	2.50
Zega Mission	7.95	1.99
Daley Thompsons Decathlon	7.90	3.99
Snokie	9.95	2.50
On Court Tennis	10.95	5.50
Frak!	8.95	1.99
Chinese Juggler	7.90	1.99
Drelbs	9.95	1.99

Free game with every order over £4.00

Quickshot II's 9.59 6.99

Gunshot 9.95 6.99

All prices include free fast delivery and same day despatch when in stock. Overseas order add 50p. Personal callers welcome. 10% discount on all orders for seven or more tapes or to a value of over £45. Cheques/POs payable to ED40.

An Epson in Commodore clothing!

NOW AVAILABLE FOR KAGA-TAXAN/CANON

How many Commodore home computer owners, when faced with buying a printer, have longed to own an Epson but been put off by the problems involved? Firstly, it's not easy to connect the two together. Secondly, even when connected, it may be necessary to load driver software or the cartridge slot may be unusable. Finally Commodore-specific characteristics such as graphics and formatting commands will not be available.

Now Micro Control Systems have the solution. Just plug the Comprint circuit board inside the Epson, connect the cable supplied to the Serial I/O port on the Commodore computer and Hey Presto! The Comprint fools the Commodore into thinking it is working with a Commodore printer. All the features are there – total emulation. And it even provides a 2K buffer as well.

What's more all the additional features that have made Epson so successful, such as condenced print and other type styles, are accessible directly by the Commodore computer. For the business user the ability to use 15 inch paper (in the MX/RX/Fx-100 range) and print a £ sign (or other Epson special characters) will prove invaluable.

So go on – spoil yourself. If you are the owner of a Commodore personal computer treat yourself to an Epson – and a Comprint of course!

I THINK I'M A COMMODORE.

FOR COMMODORE PC USERS
Internal Buffered Interfaces Serial and Parallel with capacities from 2K to 128K available for Epson and Kaga-Taxan/Canon Printers.

COMMODORE 8000, PET USERS
Buffered IEEE 488 Internal Interfaces with capacity up to 64K available for Epson.

DEALERS PLEASE NOTE
AVAILABLE FROM

Northamber	01-391-2066
STC Electric Services	0279-26811
Westwood Distribution	021-643-8680
Data Distributors (Taxan)	0442-60155
Micro Peripherals (Canon)	0256–473232
A-Line Ltd	0533-778724

"Presents excellent value for money... a worthy purchase for any Commodore 64 or VIC 20" *– PCN, January 12th, 1985.*

"This is one of the most versatile interfaces I have used... a combination that will do almost anything you ask of it" *– Commodore User, January 1985.*

"Undeniably an interface to look at" *– Commodore Computing Int., May 1985*

micro
control systems

Available from:– **Prices £61.99 inc VAT** Please add £1 P&P

CHROMASONIC
48 JUNCTION ROAD
ARCHWAY
LONDON N19 5RD
TEL 01-263 9493

OR

A-LINE DATASPEED
DEVICES LTD
3 AUBURN ROAD
BLABY, LEICESTER LE8 3DR
TEL (053758) 486

DISTRIBUTOR
ENQUIRIES TO:–
MICRO CONTROL
SYSTEMS LTD
TEL (0602) 391204

WHO DARES WINS!

Alligata have a pretty good name for producing nearly arcade clones well before anyone else manages to produce a licensed version. This game is a perfect example of that.

Who Dares Wins is a pretty good version of the biggest selling arcade game since Track 'n' field; Commando.

Although Alligata would never be able to copy the amazing graphics and sound of the actual arcade game, they have managed very well to create the very addictive nature of the game.

If Elite, the company who have the official rights to Commando, produce a game much better than this, it should really be something to see.

The idea of the game is to clear a screen of enemy troops using an unlimited machine gun and as many grenades as you can collect along the way.

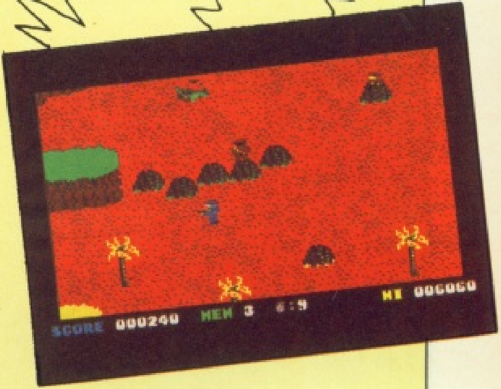
Points are scored for killing the enemy as well as for more specific tasks such as saving members of your army.

Once you have completed the first screen you must walk through a tunnel and enter the next level. After the relatively easy first screen there are many more each with more difficult opponents to destroy before progressing any further.

The sound, especially during the actual game, is not exceptional, although a nice rendition of the theme from 'The Great Escape' greets you at the beginning of the game.

The author, a certain S. Evans must be the most prolific games author at the moment, and I've yet to see a really poor one, this particular one is fun and addictive.

Fast Loader: Yes
Graphics: ***
Sound: ***
Playability: ****
CCI rating: ****
Price: £7.95 cassette.
Contact: Alligata Software Ltd, 1 Orange Street, Sheffield S1 4DW. Tel: 0742 755796.



SPELLBINDING Wizardry!

WIZARDRY

Having previewed Wizardry last month I was really pleased to obtain the finished version at the PCW show last week, as it meant I could look in more depth at what at first glance appeared to be one of the best games of the last six months.

I was not to be let down. The game is even better now it's finished, with great sound to match the already beautiful graphics.

The object of the game is to travel around the three dimensional maze, destroying, or avoiding, all the monsters and solving the puzzles until eventually you will kill the Elemental and have completed the whole game; although to be honest I do not envisage this happening for a few months to say the least!

To aid you in your quest are a variety of spells, from 'Tell-Tale' which gives you clues as to what you should do next, to 'Fire-ball' and 'Sword' which are, as their names suggest, weapons for defeating monsters.

You start the game in a relatively easy corner, though it does not take long for the unwary to realise the hidden dangers, as the first chest I came across didn't contain treasure, but a deadly poisong gas, which sure knocks your energy down if you don't get away fast!

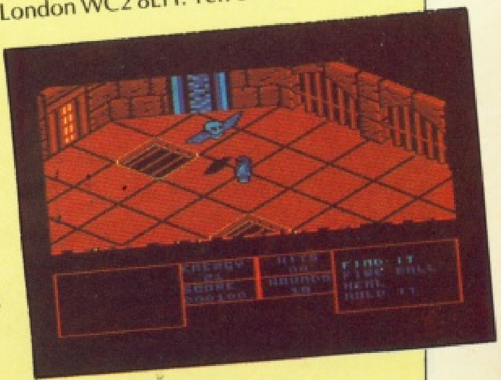
I found that the best way to get rid of evil or strong enemies was to use a 'Hold' command to freeze it; then if possible use a 'Fireball' to finish the job off.

Sound-wise Wizardry is also excellent, The Edge having commissioned a professional jingle company to compose them.This shows!! If you enter a room that has evils in, the music warns you with a sombre tune, whereas in the harmless rooms the tune is more jolly.

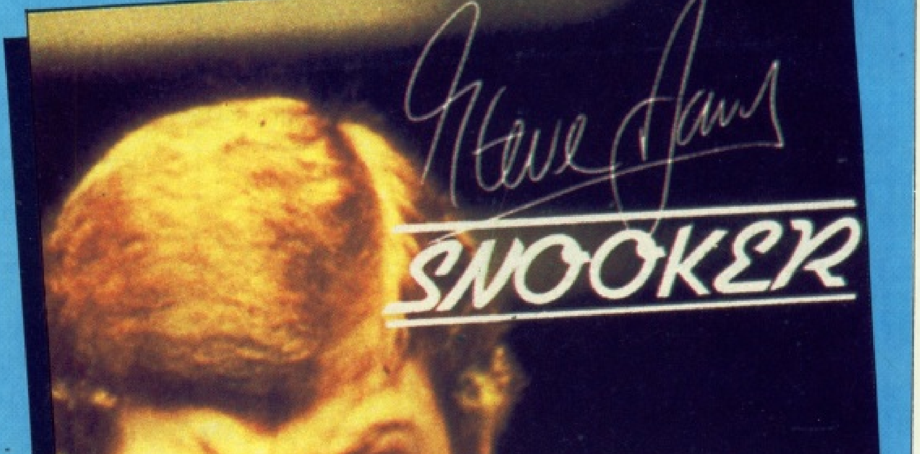
It looks likely that The Edge will publish notes on how to complete the first level, and this should help the more arcade orientated person to get hooked on this great game — I sure am!

If you want to buy a game that will last, and you're undecided, buy this one, you won't regret it.

Fast Loader: Novaload
Graphics: ****
Sound: ****
Playability: ****
CCI rating: *****
Price: £9.95 cassette, £12.95 disk.
Contact: The Edge, 12-13 Henrietta Street, London WC2 8LH. Tel: 01-240 1422.



WIN TICKETS TO CORAL UK SNOOKER CHAMPIONSHIPS, AND MORE!!!!!!!!



All you snooker fans out there should love this one!! CCI, in conjuntion with CDS has organised a really superb competition to go with there excellent game reviewed elsewhere in the issue.

All you have to do is answer these three simple questions relating to snooker.

The prizes are really superb! First prize is a pair of tickets to the final day of the Coral U.K. snooker championships in Preston on December 1st. There are two second prizes of autographed Steve Davis snooker cues, and two third prizes of Steve Davis biographies, so get answering the questions and go for it!!

All entries should be sent to the following address:

Snooker Competition,
CCI,
Finsbury Business Centre,
40, Bowling Green Lane,
London EC1R 0NE.

All entries should arrive at our offices before November 7th.

What is the maximum possible break? ....

Who deposed Steve Davis of his world snooker crown last year? ....
....

How many times has Steve Davis won the world snooker championships? ....

Name ....

Address ....
....
....
....

POOLSWINNER

THE ULTIMATE POOLS PREDICTION PROGRAM

POOLSWINNER
SELEC

Boxed, with detailed instruction booklet

- **MASSIVE DATABASE** Poolswinner is a sophisticated Pools prediction aid. It comes complete with the largest database available – 22000 matches over 10 years. The database updates automatically as results come in.
- **PREDICTS** Not just SCOREDRAWS, but AWAYS, HOMES and NO SCORES.
- **SUCCESSFUL** SELEC guarantee that Poolswinner performs significantly better than chance.
- **ADAPTABLE** Probabilities are given on every fixture – choose as many selections as you need for your bet. The precise prediction formula can be set by the user – you can develop and test your own unique method.
- **SIMPLE DATA ENTRY** All team names are in the program. Simply type in the reference numbers from the screen. Or use FIXGEN to produce fixture list automatically (see below).
- **DISC/MICRODRIVE COMPATIBLE** Tapes supplied with conversion instructions.
- **PRINTER SUPPORT** Full hard copy printout of data if you have a printer.

AVAILABLE FOR Spectrum (48K), Commodore 64, VIC 20 (+16K), AMSTRAD, BBC B, Atari (48K), ZX81 (16K), Dragon, Apple II, ELECTRON

PRICE £15.00 (all inclusive)

NOW AVAILABLE

FIXGEN 85/6

AT LAST: No more struggling for hours to get the fixture list into the computer. FIXGEN has been programmed with all English and Scottish fixtures for 1985/6. Simply type in the date, and the full fixture list is generated in seconds. Fully compatible with Poolswinner.

POOLSWINNER with FIXGEN £16.50 (all inclusive)

COURSEWINNER V3

THE PUNTERS COMPUTER PROGRAM

COURSEWINNER
SELEC

NOT JUST A TIPSTER PROGRAM, Coursewinner V3 can be used by experts and occasional punters alike.

You can develop and test your own unique winning system by adjusting the analysis formula, or use the program in simple mode. Coursewinner V3 uses statistical analysis of major factors including past form, speed ratings, course statistics, prize money, weight, going, trainer and jockey form etc, etc. It outputs most likely winners, good long odds bets, forecasts, tricasts etc. The database includes vital course statistics for all British courses. You can update the database – never goes out of date.

AVAILABLE FOR Spectrum (48K), Commodore 64, BBC (B), AMSTRAD, Atari (48K), Apple II

PRICE £15.00 (all inclusive) includes Flat AND National Hunt versions.

Send Cheques/POs for return of post service to . . .

VISA phone 24 hrs

selec SOFTWARE

Access phone 24 hrs

37 COUNCILLOR LANE, CHEADLE, CHESHIRE. ☎ 061-428 7425

(Send for full list of our software)

Simulation Software for the CBM 64

Title	Type	RRP	Our Price
747 Flight Simulator	FS	12.95	11.65
Air Combat Emulator	AC	9.95	8.95
Aircraft	AC	7.95	7.15
Airwolf	AC	7.95	7.15
Baltic '85 (D)	WG	33.41	30.06
Battle for Midway	ST	9.95	8.95
Battle for Normandy (C)	ST	14.95	13.45
Battle for Normandy (D)	ST	14.95	13.45
Beach Head (C)	ST	9.95	8.95
Beach Head (D)	ST	12.95	11.65
Beach Head II (C)	ST	9.95	8.95
Beach Head II (D)	ST	12.95	11.65
Blue Max (C)	AC	9.95	8.95
Blue Max (D)	AC	14.95	13.45
Blue Thunder	AC	6.95	6.25
Breakthrough in the Ardennes (D)	ST	59.29	53.36
Broadsides (D)	WG	38.76	34.88
Carrier Force (D)	WG	58.19	52.37
Choplifter (C)	AC	9.95	8.95
Choplifter (D)	AC	12.95	11.65
Combat Leader (C)	AC	14.95	13.45
Combat Leader (D)	AC	14.95	13.45
Combat Lynx	AC	8.95	8.05
Dambusters (C)	AC	9.95	8.95
Dambusters (D)	AC	14.95	13.45
Drop Zone (C)	AC	9.95	8.95
Drop Zone (D)	AC	14.95	13.45
Elite (C)	AC	14.95	13.45
Elite (D)	AC	17.95	16.20
F-15 Strike Eagle (C)	FS	14.95	13.45
F-15 Strike Eagle (D)	FS	14.95	13.45
Fighter Pilot (C)	FS	9.95	8.85
Fighter Pilot (D)	FS	12.95	11.65
Flight Path 737 (C)	FS	7.95	7.15
Flight Path 737 (D)	FS	9.95	8.95
Flight Simulator II (C)	FS	38.76	34.88
Flight Simulator II (D)	FS	48.48	43.63
Flyer Fox	AC	9.95	8.95
Glider Pilot (C)	FS	8.95	8.05
Glider Pilot (D)	FS	12.95	11.65
Harrier Attack	AC	6.95	6.25
Heathrow ATC	ATC	7.95	7.15
Hellcat Ace (D)	FS	27.72	24.95
IFR (Flight Simulator)	FS	26.80	24.00

Title	Type	RRP	Our Price
Interdictor Pilot (C)	AC	17.95	16.20
Interdictor Pilot (D)	AC	19.95	17.95
Jump Jet	AC	9.95	8.95
Kennedy Approach (C)	ATC	9.95	8.95
Kennedy Approach (D)	ATC	14.95	13.45
Knights of the Dessert (D)	WG	17.25	15.52
Le Mans	MR	11.99	10.79
Midway Campaign (D)	ST	14.03	12.62
Mig Alley Ace (C)	FS	9.95	8.95
Mig Alley Ace (D)	FS	14.95	13.45
Nato Commander	ST	9.95	8.95
Neutral Zone (C)	WG	31.35	28.20
Neutral Zone (D)	WG	31.35	28.20
Night Mission Pinball (D)	AC	33.41	30.06
Operation Whirlwind (C)	AC	11.95	10.75
Operation Whirlwind (D)	AC	14.95	13.45
Paras	ST	6.95	6.25
Pitstop (C)	MR	8.95	8.05
Pitstop (D)	MR	11.95	10.75
Pitstop II (C)	MR	9.95	8.95
Pitstop II (D)	MR	13.95	12.55
Pole Position (C)	MR	9.95	8.95
Pole Position (D)	MR	14.95	13.45
Raid over Moscow (C)	ST	9.95	8.95
Raid over Moscow (D)	ST	12.95	11.65
Solo Flight (C)	FS	9.95	8.95
Solo Flight (D)	FS	14.95	13.45
Space Pilot (C)	AC	7.95	7.15
Space Pilot (D)	AC	9.95	8.95
Space Shuttle	AC	9.99	8.99
Space Shuttle (D)	AC	19.95	17.95
Special Operations	ST	6.95	6.25
Spitfire 40	FS	9.95	8.95
Spitfire Ace	FS	9.95	8.95
Stunt Flyer (C)	AC	9.95	8.95
Stunt Flyer (D)	AC	12.95	11.65
Super Huey (C)	AC	8.95	8.05
Super Huey (D)	AC	14.95	13.45
Theatre Europe (C)	ST	9.95	8.95
Theatre Europe (D)	ST	12.95	11.65
Tigers in the Snow	WG	14.95	13.45
Tornado Low Level	AC	7.90	7.10
Wing Commander	ST	7.95	7.15
Zeppelin Rescue (C)	AC	17.95	16.15
Zeppelin Rescue (D)	AC	19.96	17.95

AIRBORNE SOFTWARE SPECIALISES IN THE VERY BEST SIMULATION SOFTWARE AT REALISTIC PRICES – INCLUSIVE OF POSTAGE

FS = Flight Simulation: AC = Arcade Type Simulation:
MR = Motor Racing: ATC = Air Traffic Control:
ST = Strategic Simulation: WG = Wargame

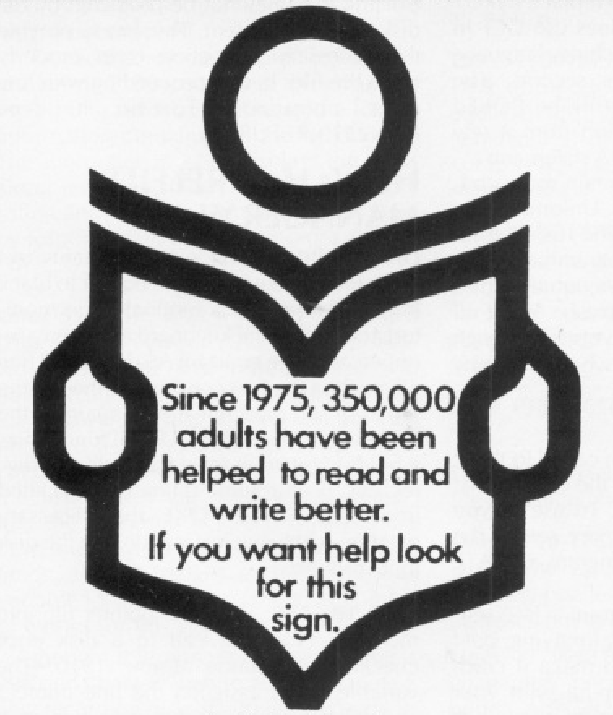
All programs are available on cassette unless shown with suffix (D). Please specifiy (C) or (D) and your machine when ordering.

Send your cheque/postal order to:

AIRBORNE SOFTWARE, P.O. BOX 1940
WATFORD WD5 ODL

For help with Reading and Writing

☎ 01-405 4017



Since 1975, 350,000 adults have been helped to read and write better.
If you want help look for this sign.

For further information
Adult Literacy & Basic Skills Unit
PO Box 213 London WC1V 7ET

WORD PROCESSOR cum LETTER WRITER FOR Commodore 64 and 128*

FULL SCREEN EDITING

- * Upper and lower case
- * Insert and delete characters
- * Add, move, delete lines
- * Search and change strings
- * Centreing facility
- * Tab facility
- * Screen 24 lines by 40 columns
- * Text up to 99 lines by 80 columns
- * View + edit any 24 lines by 40 columns
- * Or view + edit any 12 lines by 80 columns
- * Near machine code speed
- * Save text to tape or disc
- * Print to Commodore or RS232 (eg Epson)
- * Your own name and address coded in the program for your letter headings
- * Despatch by return whenever possible

A: Tape (with your address).................................. £9.85
B: Tape (without your address) £8.85
C: Disc (with address facility)................................ £14.50

Other Countries: Sterling or local currency at current exchange rates

*Runs on 128 in 64 mode.

To Cotswold Software
8 Monks Park, Milbourne, Malmesbury, Wilts
SN16 9JF

Please send me A/B/C (delete as necessary).
I enclose cheque, money order etc
(payable to Cotswold Software) for £__________
or: Please send me further details without obligation.

Name ______________________________

Address ______________________________

____

__________________________ Post Code __________

MAIL ORDER ONLY

Relfile Manager.

The second in a two-part feature on using relative files. This month David Brooks provides a record-managing program.

In last month's Hints and Tips I explained how to use Commodore relative files and a 1541 or equivalent disk drive to create random access data files. This type of file allows you to access records one at a time, in any order. It's the obvious solution to data-handling problems when you have more information than will fit in your computer's memory at once and it also speeds up retrieval of information from large data files.

The penalty associated with this flexibility is the additional programming effort required to utilize the special properties of relative files. One approach uses what are called linked lists, where every record in a file is linked to others having the same "keyword". These keywords could be, for example, bank account numbers. Then, all the records with the same account number would be linked together and could be read, changed, or manipulated in some other way without having to locate and read the records for any other account number.

Because of the complexity of record-managing programs using relative files, I've divided the programming problem into two parts. The first part, (published last month) resulted in a program called CREATE that establishes relative files having particular characteristics, and allows you to design a set of labels for the various pieces of information (fields) that go together to form a single record. This program is essential to using the program described in this part of the article.

Some Characteristics of a Record-Managing Program

As I mentioned in Part One, the programming time involved in writing good record-managing programs is sufficiently great that a first priority is that the program should be able to deal with a variety of files. This has been taken care of with program CREATE, which allows you to define your own records and fields within a general format.

Now we need to define the record-managing program itself. I feel that it should be menu-driven because this is a user-friendly concept that's easy to implement in BASIC. The options should allow you to examine, add, or change records. Equally important, the options should be implemented in a way that protects information already on the file.

Protection of existing records is a substantial problem when relative files are used with the linked list concept. With sequential files, you typically proceed by reading an entire file into memory, using, expanding, or altering it, and then writing it back onto the disk. If your program crashes along the way, the file still exists in its original form. However, with relative files, new and altered records are typically written immediately after their creation. A programming mistake can change records other than the one you intended or, in the case of the linked list, destroy the links to other records. This is truly a case of a chain being no stronger than its weakest link.

Another problem for record-managing programs written in BASIC involves the substantial limitations of the BASIC INPUT and INPUT# commands. The first is, of course, for keyboard input of information to be put on the records and the second is for retrieving information stored in disk files.

There are a variety of reasons why these commands are unacceptable as they stand. For example, you can't easily use INPUT to enter a colon or comma into a string variable. As another example, you can't use INPUT# to read a record of more than 88 characters from a disk; this is due to a limitation in the size of the BASIC input buffer and is a serious restriction for a disk-based program.

The result of these problems is that a good record-managing program should contain its own routines to replace INPUT and INPUT#. These routines use GET in the first case and a machine language version of GET# for the second. The machine language can easily be POKEd into an appropriate location from a few numbers contained in DATA statements.

Our program should contain some coding to deal with disk errors. Unfortunately, Commodore BASIC for the 64 doesn't contain any kind of programmable response to errors; if you encounter a disk error, your program will crash. About all you can hope for is to give yourself enough information to determine where and why the error occurred.

Relfile Manager

Listing 2 gives a program called RELFILE MANAGER. It contains all the characteristics I've discussed above. To use it, you need a disk with one or more sets of the three files created by program CREATE from Part One.

Generally, the program is self-prompting, and reasonably forgiving, but I haven't even attempted to make it crash proof. You should be careful with your responses and avoid pressing single-key responses before you've thought about them! At every level I've tried to provide a path back to the menu, either automatically at the conclusion of an option or on request. You're always given a second chance before a newly created or altered record is written on the disk.

I've left one menu option free for your own expansion and I've given one option that serves as an example of how to use this program for doing some simple mathematical manipulation of data on records; you can alter this to fit your own needs.

Two features of RELFILE MANAGER are not available as menu options. When I was developing this program, I often wanted to erase the test files I was working with without having to start all over again with CREATE. I wrote some code that allows you to put zeros in the data record counters of the .DATA and .PTR files. This makes the program think the files are empty. You can access this part of the program only by typing RUN2250[RETURN]. Of course, you can easily add this function to the menu of options if you like.

The second "hidden" option is a single line routine for closing all open disk files. This is useful during program development and whenever you have disk problem while the program is running. Program crashes may leave files open on the disk drive; if the red light on the 1541 stays on, you could have a problem. In this case, existing files may not be protected by the disk operating system. The way to provide the necessary protection is to properly close the files before proceeding with any other operations. To do it, type RUN2510[RETURN].

Here's How RELFILE MANAGER Works

Lines 10-90: Define some constants, set the screen background and border to black (my preference for a monochrome monitor) and switch the keyboard to lowercase-uppercase. The constant A$ defined in line 40 must be the first constant defined in the program and must not appear again on the left side of an"=" sign. A$ will function as a holding location for data read from disk records. A subroutine at line 1780 is called from line 40 to POKE the necessary machine language instructions for the disk input routine.

Lines 100-180: Read the pointer file into memory. Note the call to a disk error checking subroutine at line 1510. The variable SN is assigned the line number and printed from the subroutine if an error is encountered. This makes disk errors easier to track down when they occur.

Lines 190-240: Read the header file into memory. The SYS828 in line 230 replaces the INPUT#2 command for reading information from the disk. Do not change the file number (2) associated with the files, as the input routine will work only for this value.

Lines 250-400: Display the menu and select a program option. The relative file structure, in conjunction with a linked list, allows access to the records by keyword. Option 6 is an example of how this program can be used to do numerical calculations on specified fields within the records. I've assumed that the file contains bank accounts records. If you tell the program which field the balance is stored in, and if you've entered the records in chronological order, then the most recent balance for each account number (keyword) is found in the last record written for each account number.

Option 7 is unused. Option 8 ends the program, a process that includes re-writing the pointer file if it has been modified during the course of running the program.

Lines 410-450: Open the data file and select an option from the menu. The variable FL acts as a flag to indicate that the data file has been opened. (If you try to open a file that's already been opened, the program will crash.) Read the first record in the subroutine at line 1710 and store the data record counter as variable name N.

Lines 460-520: List all records. This simply reads and displays all records on the file. If you want to understand how records are stored and how to access them, this is a good place to study the code. The first data records is in the second file record and the last is in record N+1.

"Decoding" of the record in the subroutine at 2100 consists of breaking the record into fields according to the format information contained in the header file. The subroutine at 1710 displays the fields along with their labels. You can stop the listing and return to the menu at any time by responding to the input prompt with an "m".

Lines 530-740: Add a record associated with a new keyword. This is a complicated option. You have to be sure that you don't create a new entry in the pointer file for a keyword that already exists. First print the list of existing keywords. Then check the proposed new keyword against the list. When the program determines that the proposed keyword is, in fact, a new one, it asks for the rest of the data fields. Then it assigns a "0" to the link variable E$ and a "1" as the total number of entries for this keyword (TE$).

I thought it important to give the user a "second chance" before actually saving a new record on disk. If you decide to do it, the disk is positioned to the proper position for writing the record. The file counter N and the pointer array are updated. The flag CH is set to 1 in line 730 to indicate that a new pointer file must be written on disk before the program ends.

Lines 750-960: Change an existing record. The program logic determines if the record number you ask for exists. It displays the current record and gives you a chance to leave it unchanged. If you do change it, you can leave one or more fields unchanged just by pressing the RETURN key for the fields. The new record is displayed and you can decide to save it on disk.

Lines 970-1150: Specify a keyword and list all entries under that keyword. This option uses the link variable E$ to read just those records corresponding to a given keyword. Using bank accounts as an example again, if you've used this program to store monthly account statements, and if you've entered the monthly statements as you received them, then this option will display statements for a specified account, starting with the most recent and proceeding backwards in time to the earliest entry.

Lines 1160-1450: Add new records associated with an existing keyword. First check to make sure the specified keyword already exists on the file. Then display the most recent entry for the keyword. Enter the new fields. A RETURN will duplicate the current field in the new record. Set the link variable E$ to point to the current record and increment the total entries counter. Position the disk file and write the new record. Update the pointer file and set the CH flag so the pointer file will be re-written on disk before the program ends.

Lines 1460-1490: End the program. Rewrite the pointer file if required and close all the files.

Lines 1500-1530: Check for disk errors. Disk error numbers are greater than or equal to 20. Disk error number 50 is generated when a record is written past the current end of a file; ignore this error when relative files are being used.

Lines 1540-1570: Position the disk drive to read or write at a specified location. The file structure I've established is such that the entire record is read or written, so the drive is always positioned at the first byte (R3=1).

Lines 1580-1670: List the current pointer file.

Lines 1680-1690: Read the current data file record counter N.

Lines 1700-1760: Display a record with its label. The variable II is the data record number, one less than the record actually accessed on the file.

Lines 1770-1810: POKE a machine language disk input routine into the cassette buffer. A SYS828 replaces INPUT#2 and puts the characters into variable A$. The length of the input string is stored in location 254.

Lines 1820-1870: Write a new pointer file on disk.

Lines 1880-1940: Accept a keyword and check to see if it already exists.

Lines 1950-2040: Enter fields for a specified keyword.

Lines 2050-2080: Write a record at a specified position, including the link and total entries variables E$ and TE$.

Lines 2090-2150: Read a record at a specified position and separate it into fields as specified by the formats on the label file.

Lines 2160-2230: Display a record and decide whether to save it on disk.

Lines 2240-2320: This section of code is never called from the main program. It is used during program development to reinitialize the data and pointer files by setting the record counters to 0. This allows you to start over again with a particular file by making it look like it's empty. Subsequent data record entries will be written over whatever currently exists on the file. Access this section with RUN2250[RETURN] and *only* if you really want to effectively destroy existing records.

Lines 2330-2500: This keyboard input routine overcomes the restrictions imposed by the BASIC INPUT command. Lowercase and uppercase letters are allowed, along with some other punctuation. (See Part One of this article for a more detailed discussion of this subroutine).

Line 2510: Type RUN2510[RETURN] to close all open files, thereby protecting existing data on the disk.

Lines 2520-2760: This program option is a sample of how numerical fields can be manipulated. This program stores all information as characters, so the VAL function is used to convert strings to numbers for fields containing numerical information. Non-numeric fields will return a VAL of zero, so the program shouldn't crash if you specify the wrong field. This example sums the values in a specified field from the most recent entry for each keyword; I think of this in terms of getting current balances for several different bank accounts.

Lines 2770-2820: Create a string variable for numbers that always include two characters to the right of the decimal point. That is, a value of 17 will appear as 17.00 and 17.1 will appear at 17.10. This is useful for displaying records that contain information about money.

Lines 2830-2890: Test a specified keyword to see if it already exists in the pointer file. You have to fill out the input string with blanks, to the appropriate length, before making the comparison. That is, if the keyword can have up to six characters, an input of "KEY" must be padded with three blanks, to "KEY", before it can be tested against entries in the pointer file.

```
10 rem program name relfile manager
20 rem david r. brooks, dec 84
30 poke53280,0:poke53281,0:printchr$(14)
40 a$="12345678901234567":a$=a$+a$+a$+a$+a$:a$=a$+a$+a$:gosub1780:rem ml input
50 r0=2:r3=1:ts=0:ch=0:fl=0
60 m$="Press any key to continue, 'm' for menu"
70 bl$="                                       "
80 printchr$(147):print
90 print"    *** RECORD MANAGER ***":print
100 rem *** read pointer file ***
110 dimx2$(25)
120 open1,8,15
130 print"File name (d to quit)?":gosub2340:print
140 n$=i$:ifn$="d"thenclose1:end
150 sn=150:open2,8,2,n$+".ptr,s,r":gosub1510
160 input#2,n2:ifn2=0then180
170 fori=1ton2:input#2,x2$(i):next
180 close2
190 rem *** read header file ***
200 dim h$(20),f(20)
210 sn=210:open2,8,2,n$+".head,s,r":gosub1510
220 input#2,nc:fori=1tonc:input#2,f(i):next:l2=f(1)
230 fori=1tonc:sys828:h$(i)=left$(a$,peek(254)):next
240 close2
250 rem *** menu ***
260 printchr$(147):print"    *** RECORD MANAGER ***":print
270 print"1 - List all records"
280 print"2 - Add new keyword"
290 print"3 - Change a record"
300 print"4 - List all records for given keyword"
310 print"5 - Add new records to existing keyword"
320 print"6 - (Sample appl.) account balances"
330 print"7 - Spare
340 print"8 - End program"
350 print:print"Which option (1-8)?"
360 getj$:ifj$=""then360
370 j=val(j$)
380 ifj<1orj>8thenprint"Option error.  Try again."fori=1to1000:next:goto350
390 ifj=8then1470
400 ifj=1then420
410 rem *** open data file ***
420 iffl=1then450
430 sn=430:open2,8,2,n$+".data":gosub1510
440 gosub1690:fl=1:rem read data file counter (n) and set data file open flag
450 onjgoto470,540,760,980,1170,2540,1470,1470
460 rem *** list all records ***
470 ifn=0thenprint"Empty data file.":fori=1to1000:next:goto260
480 fori=2ton+1:r1=i:gosub2100:rem read and decode record at r1
490 ii=i-1:gosub1710:rem display record, return value of z$
500 ifz$="m"theni=n+1
510 next
520 goto260
530 rem *** add a new keyword ***
540 printchr$(147)"Add a new keyword":print
550 gosub1590:rem list pointer file
560 gosub1890:rem input new keyword, return ts
570 ifts<>1then610:rem check for match with existing keyword
580 ts=0
590 print"New keyword already exists. Return to    menu"
600 fori=1to1500:next:goto260
610 gosub1960:rem input rest of data fields
620 e$="  0":te$="  1"
630 gosub2160:rem display new record, return z$="m", "s", or "y"
640 ifz$="s"then670:rem save record
650 ifz$="m"then260:rem return to menu
660 goto560:rem try again
```

```
670 r1=n+2:n=n+1:gosub2060:rem encode and write data record
680 r1=1:gosub1550:print#2,n:rem update record counter
690 n2=n2+1:x2$(n2)=ky$+right$("   "+str$(n+1),3)+te$
700 print"More new keywords (y/n)?"
710 getz$:ifz$=""then710
720 ifz$="y"then550
730 ch=1:rem set flag to write new pointer file
740 goto260
750 rem *** change an existing record ***
760 printchr$(147)"Change a record":print
770 gosub1690:rem read data record counter
780 input"Which record to change";wh$:wh=val(wh$)
790 ifwh>norwh<1thenprint"Record doesn't exist. Try again.":goto780
800 r1=wh+1:gosub2100:rem read and decode
810 ii=wh:gosub1710:rem display current record and return z$
820 ifz$="m"then260
830 printh$(1);left$(x$,12):rem display keyword for this record
840 x$=left$(x$,12):gosub1960:rem input the rest of the record
850 gosub1710:rem display new record
860 print"Save this record on disk (y/n)?"
870 getz$:ifz$=""then870
880 ifz$="y"then920
890 print"Try again (y) or menu (m)."
900 ifz$<>"y"then260
910 goto780
920 gosub2060:rem write new record at r1
930 print"More records to change (y/n)?"
940 getz$:ifz$=""then940
950 ifz$="y"then780
960 goto260
970 rem *** list all records for a given keyword ***
980 printchr$(147)"List all records for a given keyword":print
990 gosub1590:rem list pointer file
1000 gosub2840:rem get keyword, return zy$
1010 ifz$="y"then1060
1020 print"Keyword doesn't exist. Try again (y) or (m)."
1030 getz$:ifz$=""then1030
1040 ifz$="y"then990
1050 goto260
1060 r1=val(mid$(x2$(ky),12+1,3))
1070 gosub2100:rem read and decode record at r1
1080 ii=r1-1:gosub1710:rem display record and return z$
1090 ifz$="m"then260
1100 r1=val(e$)
1110 ifr1<>0then1070
1120 print"Last entry for keyword "ky$:print"Do another keyword (y) or menu(m).
"
1130 getz$:ifz$=""then1130
1140 ifz$="y"then990
1150 goto260
1160 rem *** add new records to an existing keyword ***
1170 printchr$(147)"Add a new record to an existing keyword"
1180 gosub1590:rem list pointer file
1190 gosub2840:rem test keyword, return zy$
1200 ifzy$="y"then1250
1210 print"Keyword doesn't exist. Try again (y) or (m)."
1220 getz$:ifz$=""then1220
1230 ifz$="y"then1180
1240 goto260
1250 r1=val(mid$(x2$(ky),12+1,3)):te$=right$(x2$(ky),3)
1260 gosub2100:rem read and decode current entry
1270 ii=r1-1:gosub1710:rem display current entry and return z$
1280 ifz$="m"then260
1290 e$=right$("   "+str$(r1),3)
1300 te$=right$("   "+str$(val(te$)+1),3)
1310 gosub1690:rem read data file counter
```

```
1320 printh$(1);ky$:rem display keyword
1330 x$=ky$:gosub1960:rem input rest of record
1340 gosub2160:rem display record and decide to save
1350 ifz$="s"then1380
1360 ifz$="m"then260
1370 goto1320
1380 r1=n+2:n=n+1:gosub2060:rem encode and write record
1390 r1=1:gosub1550:print#2,n:rem update record counter
1400 x2$(ky)=ky$+right$("   "+str$(n+1),3)+te$
1410 print"More keyword updates (y/n)?"
1420 getz$:ifz$=""then1420
1430 ifz$="y"then1170
1440 ch=1:rem set flat to update pointer file
1450 goto260
1460 rem *** end program ***
1470 close2:ifch=1thengosub1830:rem write new pointer file
1480 print"PROGRAM FINISHED"
1490 close1:end
1500 rem *** disk error checking ***
1510 input#1,er,er$,e1,e2:ifer<20orer=50thenreturn
1520 print"Disk error from statement ";sn:printer;er$:close2:close1:end
1530 return
1540 rem *** position rel file
1550 rh=0:rl=r1:ifr1>255thenrh=int(r1/256)rl=r1-256*rh
1560 print#1,"p"chr$(r0)chr$(rl)chr$(rh)chr$(r3)
1570 return
1580 rem *** list pointer file ***
1590 print:print"Pointer file has "n2" entries."
1600 ifn2=0then1650
1610 print"Current keyword file..."
1620 print"Keyword, Data record #, Total entries"
1630 fori=1ton2:printleft$(x2$(i),12)"  ";
1640 printstr$(val(mid$(x2$(i),12+1,3))-1)"  "right$(x2$(i),3):next
1650 print"Press any key to continue..."
1660 getz$:ifz$=""then1660
1670 return
1680 rem *** read data file counter ***
1690 r1=1:gosub1550:input#2,n:return
1700 rem *** display record ***
1710 printchr$(147)"Record # "ii:print
1720 forjj=1tonc:printh$(jj)d$(jj)
1730 next
1740 printm$
1750 getz$:ifz$=""then1750
1760 return
1770 rem *** poke machine language for disk input ***
1780 forj=828to865:readx:pokej,x:next
1790 data160,2,177,45,153,249,0,200,192,6,208,246,162,2,32,198,255,32,228
1800 data255,201,13,240,11,164,254,145,252,200,132,254,196,251,208,238,76,204,
     25 5
1810 return
1820 rem *** write new pointer file ***
1830 print"I'm updating some files now..."
1840 sn=1840:open2,8,2,"@:"+n$+".ptr,s,w":gosub1510
1850 print#2,n2
1860 fori=1ton2:print#2,x2$(i):next:close2
1870 return
1880 rem *** get new keyword and check for duplication
1890 printchr$(147)"Type in a new keyword..."
1900 printh$(1)"{RV}"left$(bl$,f(1))"{RO}"
1910 print"{HM}{CD}{CD}"tab(len(h$(1)));:gosub2340:print
1920 x$=left$(i$+bl$,12):ky$=x$
1930 fori=1ton2:ifx$=left$(x2$(i),12)thents=1:i=n2:next
1940 return
1950 rem *** input rest of data fields ***
```

**** TAPE BACK-UP DEVICES ****

DCL 1 Interface

The DCL1 links two Datasettes, so that loading any program (including Turbos) from Datasette no.1 simultaneously creates a BACK-UP TAPE on Datasette 2. No software needed.
• Thousands sold • ORDER AS DCL 1 **PRICE £10.00**

DCL 4 Interface

This SUPER DCL1 is for those with one datasette and one audio recorder. Back-up tapes can be made on either a second Datasette or on an audio recorder. A LED data monitor shows the start & end of programs.
• Very Popular • ORDER AS DCL 4 **PRICE £17.00**

DCL4A Interface

SIMILAR TO THE DCL4 but fitted with an Audible data monitor.
** NEW ** ORDER AS DCL4A **PRICE £18.50**

**** BACK-UP PROBLEMS SOLVED ****

Alignment Tape

Realign your Datasette tape head VERY PRECISELY with this easy to use kit. (No dismantling of the Datasette required) Two high baud rate tests are provided plus a special screwdriver and full instruction.
** NEW ** ORDER AS DHA 1 **PRICE £7.50**

Tape Head Demagnetiser

This mains powered demagnetiser, if used a few seconds per week, (no need to dismantle the Datasette), will reduce troublesome residual magnetism and improve loadability.
• Indispensable • ORDER AS THD 1 **PRICE £6.30**

• • GT LOADER CARTRIDGE • • for 1541 D/Drive

GT Loader Cartridge

This cartridge enables your 1514 d/drive to load 4-5 times faster. With many useful features including abbreviated load/save commands and unique on/off switching etc.
• Essential • ORDER AS GTL 1 **PRICE £20.00**
ALSO AVAILABLE WITH BUILT-IN RESET SWITCH
ORDER AS GTL 2 **PRICE £22.00**

**** FREE CATALOGUE ** Please send 17p stamp**

Free Catalogue

Full details of these and many other products all at
** FULLY INCLUSIVE PRICES **

eg BROTHER HR5 80 col Dot Matrix Printer	£149.00
eg FIDELITY CM14 Colour Monitor for CBM64	£199.00
eg PRINTER Cable and software driver for CBM64	£19.90
eg THE STICK. The fantastic new baseless joystick	£13.95

PLUS Interfaces, cleaning kits, printer/monitor leads, etc etc

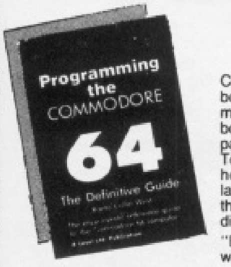
**** 10 DAY MONEY BACK GUARANTEE ON ALL HARDWARE ****

Terms:

ORDERING: ALL PRICES ARE FULLY INCLUSIVE – NO HIDDEN EXTRAS AND INCLUDE RECORDED DELIVERY. (EXPORT: add £1.00 extra)

TRILOGIC Dept CCI
(formerly Trigsoft)
29 HOLME LANE, BRADFORD, BD4 0QA
Tel: 0274-684289

COMMODORE 64 OWNERS
The Ultimate Reference Book



Programming The Commodore 64
by Rae West

Comprehensive and readable teaching and reference book on the 64. Takes over where Commodore's manual leaves off. Much larger than most computer books. Programs available separately on disk or as pack of 2 tapes – saves keying time.
Topics covered include course in BASIC programming. how BASIC works, extending BASIC, machine-language course, ROM guide and memory-maps etc, thorough coverage of graphics and sound, tape and disk handling hardware.

"Best of all the books . . . required reading for all those who wish to make full use of their 64s" – Jack Cohen.

Programming The Commodore 64 (R. West) £14.90 in UK/Europe. 624 page paperback. 17 chapters & appendices. ISBN 0 9507650 2 3. Published by Level Ltd. (Computer Publications), P.O. Box 438, Hampstead, London NW3 1BH.

Programming The Commodore 64 Disk £8.90 (incs. VAT) ISBN 0 9507650 3 1.

Programming The Commodore 64 Tapes £9.90 (incs. VAT) ISBN 0 9507650 1 X.

Programming The VIC (R. West) £10.90. Large paperback. ISBN 0 950 7650 1 5. "Packed with virtually all the information you are likely to read" – J. Goldsmith.

Programming The PET/CBM (R. West) £18.90. Large paperback. ISBN 0 9507650 0 7. "Undoubtedly the most comprehensive reference I have seen" – Jim Butterfield.

MAIL ORDER FORM

From booksellers/retailers/dealers or by direct mail. Send orders and make cheques payable to Level Ltd (Computer Publications), c/o Biblios Distribution Ltd, Star Road, Partridge Green, Nr Horsham, W. Sussex RH13 8LD.

Quantity	Title	Price	Total
________	Programming The Commodore 64 (West)	£14.90*	________
________	Programming The Commodore 64 Disk	£ 8.90**	________
________	Programming The Commodore 64 Tapes	£ 9.90**	________
________	Programming The VIC (West)	£10.90*	________
________	Programming The PET/CBM (West)	£18.90*	________
		*Add £1 each postage	________
		**Add 50 each postage	________
			________
		TOTAL PAYMENT	________

NAME/ORGANISATION: ____________________
ADDRESS: ____________________
____
____
____________________ CCI II 85

NEW

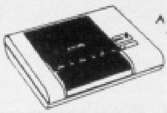
Evesham Micros

THE UTILITY SPECIALISTS

3M Floppy Disks

3M
diskettes

BOXES OF TEN DISCS
SS/DD £16.00
DS/DD £20.00
NEW SPECIAL PACKS WITH PLASTIC CASE
SS/DD .... £17.00 including Case
DS/DD .... £21.00 including Case



DATA RECORDER
A **dedicated** data recorder designed for use on the CBM 64 or Vic-20. Specification as C2N but **with pause button.** Model available for the PLUS4 or 16 at same price.
SATISFACTION GUARANTEED.
ONLY £29.95

HARDWARE SPECIALS

STAR SG10C
The ultimate Commododre ready printer. 120 cps or 40 cps in near letter quality mode. Friction and tractor feed.
ONLY £249.00

MPS801 PRINTER
Popular printer at a stunning price.
ONLY £99.95

MPS803 PRINTER
Exceptional print quality for the price.
ONLY £139.95

1541 DISC DRIVE
Look at this price, it is not a misprint.
ONLY £99.95

DISC NOTCHER
Handy new tool allows you to punch a second write protect notch in your discs. Double your disc capacity by using both sides of your discs.
ONLY £9.95

FREEZE FRAME

THE NEW GENERATION OF BACKUP METHODS HAS ARRIVED

"Freeze Frame" is the product that '64 owners have been waiting for. At the flick of a switch
"Freeze Frame" will take control of your computer and freeze the program in memory, allow-
ing you to **SAVE it to tape or disc**. The uses are endless, but typical applications are . . .
TAPE TO DISC: ANY program can be frozen and **transferred to disc** regardless of the
type of loading technique used. (Disc save incorporates a fast loading system.)
DISC TO TAPE: ANY memory resident disc program can be backed up onto tape. (Choice
of normal or turbo save speed.)
DISC TO DISC: It is possible to make a self contained back up of disc based programs that will
both **load at high speed** and **allow the rest of the disc to be used as normal**.
TAPE TO TAPE: Tape back ups can be made at turbo speed with just one tape deck.
In fact **"Freeze Frame" will FREEZE any program** that is memory resident, and allow you
to make a back up of that program onto tape or disc. The beauty being that the saved version
can be a fast booting single file. The process is **completely automatic**, no knowledge of
BASIC or machine language is required, just follow the prompts and the simple instructions for
100% success.
"Freeze Frame" is a hardware "device" that plugs into the cartridge port of the '64. It does
NOT dump the entire contents of memory, just the **working program**. Programs converted
run **independently** of the hardware.

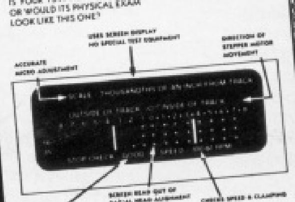
ONLY £39.95

WARNING: Don't be mislead by other adverts, if you want to transfer turbo load programs to
disc, software only utilities are **inadequate**. They suffer from a variety of drawbacks including
poor success rate, awkward to use, greedy on disc space and overpricing.

ALIGNMENT PROBLEMS?

1541 PHYSICAL EXAM **£39.95**

IS YOUR 1541 HEALTHY?
OR WOULD ITS PHYSICAL EXAM
LOOK LIKE THIS ONE?


USES SCREEN DISPLAY NO SPECIAL TEST EQUIPMENT
DIRECTION OF STEPPER MOTOR MOVEMENT
ACCURATE MICRO ADJUSTMENT
SCREEN READ OUT OF RADIAL HEAD ALIGNMENT
CHECKS SPEED & CLAMPING OF DRIVE
CHECKS MECHANICAL STOP POSITION

The program includes a digital alignment disc and software which allows you to **accurately check and correct** disc drive alignment. The instruction booklet is **very detailed**. Also includes quiet drive stops to **stop** that "hammering" thus preventing further problems.
ONLY £39.95

DISC DISECTOR V3.0

Now the ultimate disc copying and utility program for the
CBM 64 with 1541 disc drive has been **improved even**
further. As well as general improvements plus the addition of
some useful utilities two important new programs have been
added.
The Evesham Nibbler
This is the first copier of its kind to appear on the U.K. market.
It is a **true nibbler** (byte for byte) copier that will copy **ALL**
DOS errors automatically. This includes DOS errors 20–
29 inc. plus non standard errors like half tracks, extra tracks,
non standard sync. renumbered tracks, etc. They are all treated
as normal work. No knowledge is required at all it just
"nibbles away" and produces a perfect copy. Yet it **only**
takes eight minutes. Has copied **all discs tested** (except
itself). A **class above** anything else available.
Fast File Copier
An **incredibly handy** selective file copier that LOADs and
SAVEs at **five times** normal speed. Sounds useful? You won't
believe how much until you have used it.
As well as these programs "Disc Disector" incorporates a
whole host of useful utilities including the following. **Fast**
Format, **Selective Menu Maker**, **Disc Editor** (new
sophisticated machine code version), **Scratch/Unscratch**,
Fastcopy, **Rename**, **Fastload** (four times faster), etc. etc.
This program is an **essential purchase** for the 1541 user.
ONLY £29.95
Customers with earlier versions may return them along with
£9.95 for "V3.0".

Quickdisc+ **FAST LOAD PLUS UTILITY CARTRIDGE**

Get a **QUICKDISC+** cartridge plugged into your '64 and your 1541 will really **start to perform**. So many features per pound (sterling) that you will hardly believe it. Includes the following . . .
Fast LOAD and SAVE (four to five times normal speed). Works with most protected software. Can be switched in and out from the keyboard.
Fast Format takes just 10 seconds.
Fast Backup copies an entire disc in four minutes. (Not heavily protected software.)
Fast File Copier for selective fast copying.
Improved DOS commands (DOS 5.1) makes for easy use of the disc drive. e.g. $(RETURN) will LOAD and display a directory without overwriting BASIC. SHIFT RUN/STOP will LOAD"0:*",8,1 etc. etc. Very, very useful.
Incorporates Centronics printer software (user port) **with CBM graphics** capability. See "Commodore Connexion" for suitable lead.
A RESET switch is fitted. (We have found this to be "unstoppable", it also preserves the tape buffer.)
NO MEMORY IS USED by this cartridge, it is totally "transparent" and uses special switching techniques.
Now the price. No, not £49.95, it's **not even half** that much. Can you afford to be without QUICKDISC+.
ONLY £19.95
No extra connections are necessary with QUICKDISC+ and unlike most similar products it is compatible with printers and second drives.

All prices include P&P and VAT. Send cheque, Postal Order of Credit Card No. Credit Card order accepted by phone. Callers welcome. Wide range of goods stocked. Trade enquiries welcome. European orders send price as advertised. Outside Europe £2.00 for airmail. Mail order to Evesham Shop please.

EVESHAM MICROS
BRIDGE STREET, EVESHAM,
WORCS., WR11 4RY.
Tel: 0386 41989

MICRO CENTRE
1756 PERSHORE ROAD,
COTTERIDGE, BIRMINGHAM.
Tel: 021-458 4564

small data-base.
ideal for addresses, telephone numbers, agenda.
DIARY
Both for the novice and the advanced player
BRIDGE 64
MON 64
VIC REL
STAT 64
V24 (RS232) Interface
Bridge 64
TELE-DATA 64
SUPER BOX 64
Graf 64
MON 64
HANDIC V24(RS232) INTERFACE
FORTH 64
SUPER BOX 64

The Handic SUPERMARKET

YOU can now buy the complete range of "off the shelf" Handic products by post, if you're not near a Handic dealer. All you have to do is make your selection, tick the boxes and send in the coupon with your remittance. We will pay the postage and packing and offer a full 14 day money back guarantee. Handic produce many software and hardware accessories for IBM and compatibles, the Commodore 3000, 4000, 8000 & 700, and of course the Commodore 64.

HANDIC DATABASE

Database, for example, is a brand new, cartridge and disc based software package. Especially designed for both, first time and experienced data base users.

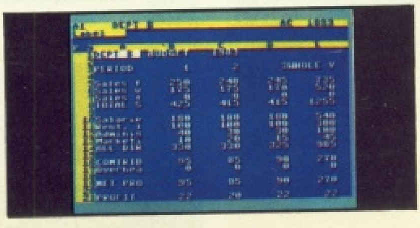
For those of you who need to collate and store information for easy recall, data base can make life easier. The basic package includes a mailing list and 4 different print programs.

NEW
handic data base
handic data base

CALC RESULT

Calc Result, the financial spreadsheet for the 64, that's ideal for all those domestic headaches, such as loans, mortgages, home budgeting, stock portfolios, tax planning – let alone all those bills! In the office too Calc Result will make calculating, budgeting, simulation, construction so much easier for the business – large or small. This easy to learn package comes in two versions – Calc Result easy (cartridge based) and Advanced (disc and catridge based with pedagogical manual).

Calc Result
Calc Result

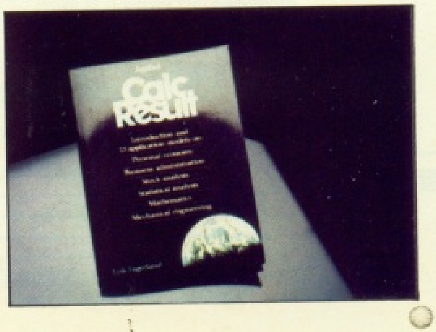


TECHNICAL DATA

- **Spread sheet size** 64 X 254 X 32 pages
- **Consolidation:** Easy with the 32 pages available in Calc Result Advanced
- **Printing:** Flexible printing formats out to most popular printers
- **Graph:** Histogram with scroll through feature rows and columns for printing
- **Colour:** Supports full colour down to individual cell level
- **Help:** Easy help screens available, at all levels
- Calc Result is also available in eight European languages

Applied Calc Result describes a larger number of applications in the area of:–
PERSONAL AND BUSINESS FINANCE · STOCKS AND SHARES · STATISTICS · MATHEMATICS ·

The user of Calc Result will find among the applications given many useful examples of how to get the most from Calc Result.


Applied Calc Result

THE Handic supermarket basket is full of 'goodies' for your Commodore 64. Here is a brief description of what they all are! Don't forget – if you need any more information, either clip the coupon (and tick column 'A') or give us a ring.

1 Mon 64
An outstanding Machine Code Monitor (cartridge based)

2 Teledata
Communication cartridge for use with the CBM 64, link up with Databases like the bank or supermarket, over the telephone lines.

3 Superbox 64
An expansion unit for the Commodore, which features three independant cartridge slots; IEEE interface that is totally transparent; has multi-user capabilities with IEEE; and a re-set switch which activates a cold start on the computer. This unit will connect up to 3 cartridges at the same time, which makes frequent altering between programs simple and reduces wear on the cartridge slot.

4 Vic Rel
Vic Rel (Rel 64) is a relay cartridge for the CBM 64 and Vic 20 which has almost limitless applications, such as control of burglar alarms, garage doors, door locks, electric radiators, lamps , transmitters, model railways, etc.etc.

5 Disc-based games
Handic have a set of disc based games for the Commodore 64, all are great fun and superb colour graphics. At around 9.95 each. Why not treat yourself to a few? *Quantity discounts are available on request – dealer enquiries are also welcome.*

6 Diary 64
An ideal program for keeping track of telphone numbers, addresses, appointments, schedules, in fact the ideal time manager for all you sieve-heads.

7 Stat 64
The statistical CBM cartridge which ads 19 new commands to your Basic language. An excellent programming aid for all you statisticians.

8 Graf 64
A CBM cartridge that turns solutions of equations into graphical analysis, what you might call a plotter-jotter.

9 Handic Auto Modem
This modem is the expanded version of the Videotex modem (see illustration). When used together with the Handic Teledata Base 64 this unit enables you to set up your own data base with information.

Videotex Split-Speed Modem
This Split-Speed modem is especially designed to connect with computers over the telephone lines, its facilities include auto-dialling, line control, etc. (BT approval applied for).

10 RS232
A standard V.24 (RS232) interface for connecting the CBM 64 to printers and other peripherals.

11 Bridge 64
A cartridge bridge game for the intelligentsia.

12 Forth 64
A Forth generation programming language for people who know what they are talking about, and want to know even more.

MON 64
5
6
DIARY
4
7
10
1
11
2
3
8
9
12

Checklist

COMMODORE 64–SOFTWARE

		A	B
CALC RESULT ADVANCED	99.00	☐	☐
CALC RESULT EASY	49.95	☐	☐
DIARY 64	19.95	☐	☐
BRIDGE 64	19.95	☐	☐
STAT 64	29.95	☐	☐
REL 64	34.95	☐	☐
MON 64	39.95	☐	☐
GRAF 64	29.95	☐	☐
FORTH 64	34.95	☐	☐
SSP (DISK BASED DIARY)	12.95	☐	☐
DISK BASED GAMES			
SPACE ACTION	9.95	☐	☐
SPACE TRAP	9.95	☐	☐
OISAC	9.95	☐	☐
Q-HOP	9.95	☐	☐
THE SHIP	9.95	☐	☐
MUTANT SPIDERS	9.95	☐	☐
FOURTH SARCOPHAGUS	9.95	☐	☐
STELLAR CONFLICT	12.95	☐	☐
IMAGINATION	12.95	☐	☐
REAL ESTATE	12.95	☐	☐
COMMODORE 64–HARDWARE			
VIC SWITCH	97.75	☐	☐
3M CABLE	4.95	☐	☐
6M CABLE	7.94	☐	☐
12M CABLE	9.89	☐	☐
SUPER BOX	67.87	☐	☐
RS232 INTERFACE	39.42	☐	☐
RESET SWITCH	5.98	☐	☐
APPLIED CALC RESULT	14.95	☐	☐
NEW HANDIC DATA BASE	62.00	☐	☐
IBM & COMPATIBLES			
CALC RESULT	316.25	☐	☐
WORD RESULT	316.25	☐	☐
CALC & WORD RESULT	534.75	☐	☐

A 5% DISCOUNT MAY BE MADE ON ORDERS OVER £99.00
POSTAGE AND PACKING F.O.C.

SOFTWARE & HARDWARE FOR THE COMMODORE 8000/700

		A	B
CALC RESULT 8000	228.85	☐	☐
CALC RESULT 700 SERIES	258.75	☐	☐
WORD RESULT 700 SERIES	258.75	☐	☐
HARDWARE			
PET SWTICH MOTHER UNIT	172.50	☐	☐
DAUGHTER UNITS			
–SK/05/8295 1.5 mtr	112.70	☐	☐
–SK/05/8296 3.0 mtr	112.70	☐	☐
–SK/05/8296 7.5 mtr	112.70	☐	☐
–700 SERIES incl. ADAPTOR	126.74	☐	☐

I enclose cheque/Postal Order for £ ______

Charge my ☐ Access ☐ Visa ☐ American Express

Card No. ______

Signature ______

Date ______

NAME ______

ADDRESS ______

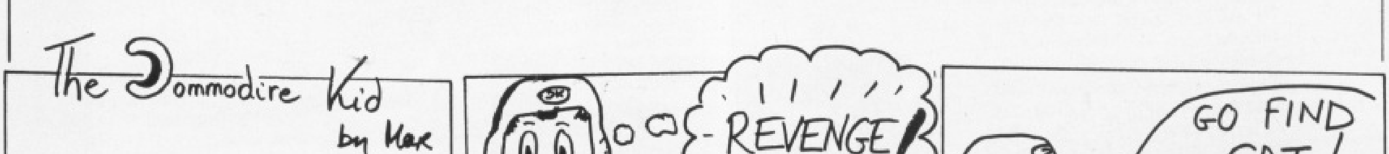
ALL PRICES INCLUDE VAT

CALL US ON 0494-450661
TO PLACE YOUR ORDER TODAY
HANDIC SOFTWARE LIMITED
Unit 1, The Valley Centre,
High Wycombe, Bucks. HP13 6EQ

Tick column A for more information and column B for order.

handic
software ltd.

```
1960 print"Now the rest of the data fields..."
1970 ifj=3orj=5thenprint"Press {RV}RETURN{RO} to leave field unchanged."
1980 fori=2tonc
1990 printh$(i)"{RV}"left$(bl$,f(i))"{RO}":rem print heading and field prompter
2000 printtab(len(h$(i)));:gosub2340:print:ifi$=""then2020
2010 d$(i)=left$(i$+left$(bl$,f(i)),f(i)):rem fill out data field
2020 x$=x$+d$(i)
2030 next
2040 return
2050 rem *** write record at r1 ***
2060 x$=x$+e$+te$
2070 gosub1550:print#2,x$
2080 return
2090 rem *** read and decode from r1 ***
2100 gosub1550:rem position at r1
2110 sys828:x$=left$(a$,peek(254)):rem ml disk input subroutine
2120 f(0)=0:k=1:forjj=1tonc:k=k+f(jj-1)
2130 d$(jj)=mid$(x$,k,f(jj)):next
2140 k=k+f(jj-1):e$=mid$(x$,k,3):te$=right$(x$,3)
2150 return
2160 ii=n+1:gosub1710:rem display new record
2170 print"Save on disk (y/n)?"
2180 getz$:ifz$=""then2180
2190 ifz$="y"thenz$="s":return
2200 print"Try again (y) or menu (m)."
2210 getz$:ifz$=""then2210
2220 ifz$<>"y"thenz$="m"
2230 return
2240 rem *** file re-initialization ***
2250 open1,8,15
2260 print"File name (d to quit)?":gosub2340
2270 n$=i$:ifn$="d"thenclose1:end
2280 sn=2280:open2,8,2,"@:"+n$+".ptr,s,w":gosub1510
2290 print#2,0:close2
2300 sn=2300:open2,8,2,n$+".data":gosub1510
2310 r1=1:r0=2:r3=1:gosub1550
2320 print#2,0:close2:close1:end
2330 rem *** keyboard input routine ***
2340 rempoke808,225
2350 poke650,128
2360 i$="":printchr$(175)chr$(157);
2370 printchr$(175)chr$(157);:z$="":getz$:ifz$=""then2370
2380 ifz$=chr$(13)orz$=chr$(141)then2490
2390 ifz$=chr$(20)andlen(i$)=0then2370
2400 ifz$=chr$(20)thenprintz$;:i$=left$(i$,len(i$)-1):goto2370
2410 ifasc(z$)>31andasc(z$)<96then2440
2420 ifasc(z$)>192andasc(z$)<219then2440
```



```
2620 print:input"Which field to add";fd$:fd=val(fd$)
2630 iffd<1orfd>ncthenprint"Error. Try again...":goto2620
2640 tf=0
2650 fori=1ton2:ky$=left$(x2$(i),12):r1=val(mid$(x2$(i),12+1,3))
2660 gosub2100:rem read and decode record at r1
2670 nb=val(d$(fd)):gosub2780
2680 tf=tf+nb
2690 printky$;nb$
2700 next
2710 print"----------------------"
2720 nb=tf:gosub2780
2730 printleft$(bl$,12);nb$
2740 print"Press any key to return to menu..."
2750 getz$:ifz$=""then2750
2760 goto260
2770 rem *** number formatter ***
2780 nb$=right$("          "+str$(nb),10)
2790 ifmid$(nb$,9,1)="."thennb$=right$(nb$+"0",10)
2800 ifmid$(nb$,8,1)="."then2820
2810 nb$=right$(nb$+".00",10)
2820 return
2830 rem *** test keyword input ***
2840 input"Which keyword";ky$
2850 ky$=left$(ky$+left$(bl$,12),12)
2860 zy$="":fori=1ton2:rem locate current keyword
2870 ifky$=left$(x2$(i),12)thenky=i:i=n2:zy$="y"
2880 next
2890 return
2430 goto2370
2440 printz$;:iflen(i$)+len(z$)>255then2470
2450 i$=i$+z$:ifz$=chr$(34)thenpoke212,0
2460 goto2370
2470 print:print"strings can't have more then 255"
2480 print"characters..."
2490 poke650,0
2500 poke808,237:return
2510 open15,8,15,"i":close15:end
2520 rem *** account balances ***
2530 rem a sample program application
2540 printchr$(147)"This is a sample application of"
2550 print"program RELFILE.  It assumes that you"
2560 print"have some numerical fields, like bank"
2570 print"account balances.  By specifying which"
2580 print"field you want to add, this particular"
2590 print"section sums the numbers in the latest"
2600 print"entry of each keyword (account number)."
2610 print:fori=1tonc:printh$(i):next
```

PSST!
GRRR!!
AEEYA!!!
CRASH!
CRUMBLE
GOOD PRACTICE, THESE KARATE GAMES!!
Max

Parallel Printing

Completing Gerry Kennedy's article on printer utilities, this month explaining how to clear and move the contents of large areas of memory, and how to dump screen text by program to a parallel printer via the user port

In developing machine code programs, the ability to print exactly what is on the screen easily and without interacting with the program under development is highly desirable. In this section we shall see how to connect a parallel (Centronics-type) printer to the Commodore 64 and how to drive it in software. The program was specifically designed for the Epson FX-80, but it should control any parallel printer, with perhaps the delay values altered by experiment: this will be covered later.

There is no parallel printer port as such on the Commodore 64: the User Port is configured to act as one. The port comprises an extension to the back panel of the main computer board, with gold flashed strip connections above and below the board. The connections, as viewed looking into the socket are shown in Figure 1.

A suitable connector for the user port is a 24-way 0.156inch pitch double-sided edge connector such as the BICC-Vero type 928 (obtainable from Verospeed Ltd, Eastleigh as part no 928-74363E). If this particular item is used, it requires polarising: this is easily done by passing an ordinary sewing or shirt pin through the plug by heating the pin with a soldering iron, and snipping off the surplus. The position of the polarising keyways is shown in Figure 1. A matching cable clamping shell does not seem to be available for the 928 24-way connector, but a die-cast cover can be obtained from RS Components Ltd (part no 467-087) which will fit. The Centronics-type printer connector is the Amphenol 36 way plug type 57-30360 which is available from many sources.

It should be noted that only the underneath connections to the user port are used for parallel printer driving, but that no connection should be made to the top row, since these are active; hence a genuine double sided edge connector must be used, since a 24-way single-sided plug would link the two rows of connections.

Commodore 64				
UART Sig	User Port Pin	BICC-Vero 928 Pin Marking	Signal	Centronics-type Printer Pin
PA2	M	A11	Strobe	1
PB0	C	A3	Data 0	2
PB1	D	A4	Data 1	3
PB2	E	A5	Data 2	4
PB3	F	A6	Data 3	5
PB4	H	A7	Data 4	6
PB5	J	A8	Data 5	7
PB6	K	A9	Data 6	8
PB7	L	A10	Data 7	9
Flag 2	B	A2	Acknowledge	10
Common	A or N	A1 or 12	Common	16

Figure 2

1	2	3	4	5	6	7	8	9	10	11	12
A	B	C	D	E	F	H	J	K	L	M	N

Figure 1

For the program described later, DIP switch 2-4 in the FX-80 should be switched off; that is, automatic line feed should be switched off, the line feed coming from the Commodore 64.

The user port – Centronics-type printer cable connections are shown in Figure 2.

If a screened cable is used, the common line should be connected to the outer braid as well as the pins shown.

A flowchart for the software to configure the user port and drive the printer is shown in Figure 3. The program first of all sets up the UART, or more precisely, the CIA (6526 Complex Interface Adapter, U2 on the C-64 circuit diagram) to have PA2 and all the PB lines as outputs (strobe and data respectively). Flag 2 is permanently set as an input (acknowledge) and is the only handshaking line required. Various counters and a pointer are reset, and the screen base address of $0400 set.

The main loop is then entered whence the screen character at the top left of the screen is fetched (from $0400), converted to ASCII and sent down the cable to the printer buffer.

It should probably be pointed out here that the screen memory mapped locations return non-ASCII characters. For example, a capital letter "A" on the screen in $0400 would return $01 to the program. This value is OR'd with $40 to give $41, the ASCII representation of "A".

The organisation of the program is into blocks of 6 lines of 40 characters. Since 25 lines are available on the standard text screen, 4 blocks of 6 lines are used, with a final short block of one line only. The main loop counts lines and which block is in use, and sends carriage return and line feed to the printer every line, in order to release the printer buffer to print line by line. A delay is built into the carriage return-line feed command in order to allow the printer to actually print and reset its input buffer.

The program terminates when the end of the last short block of one line has been sent.

A full listing of the parallel FX-80 program is shown.

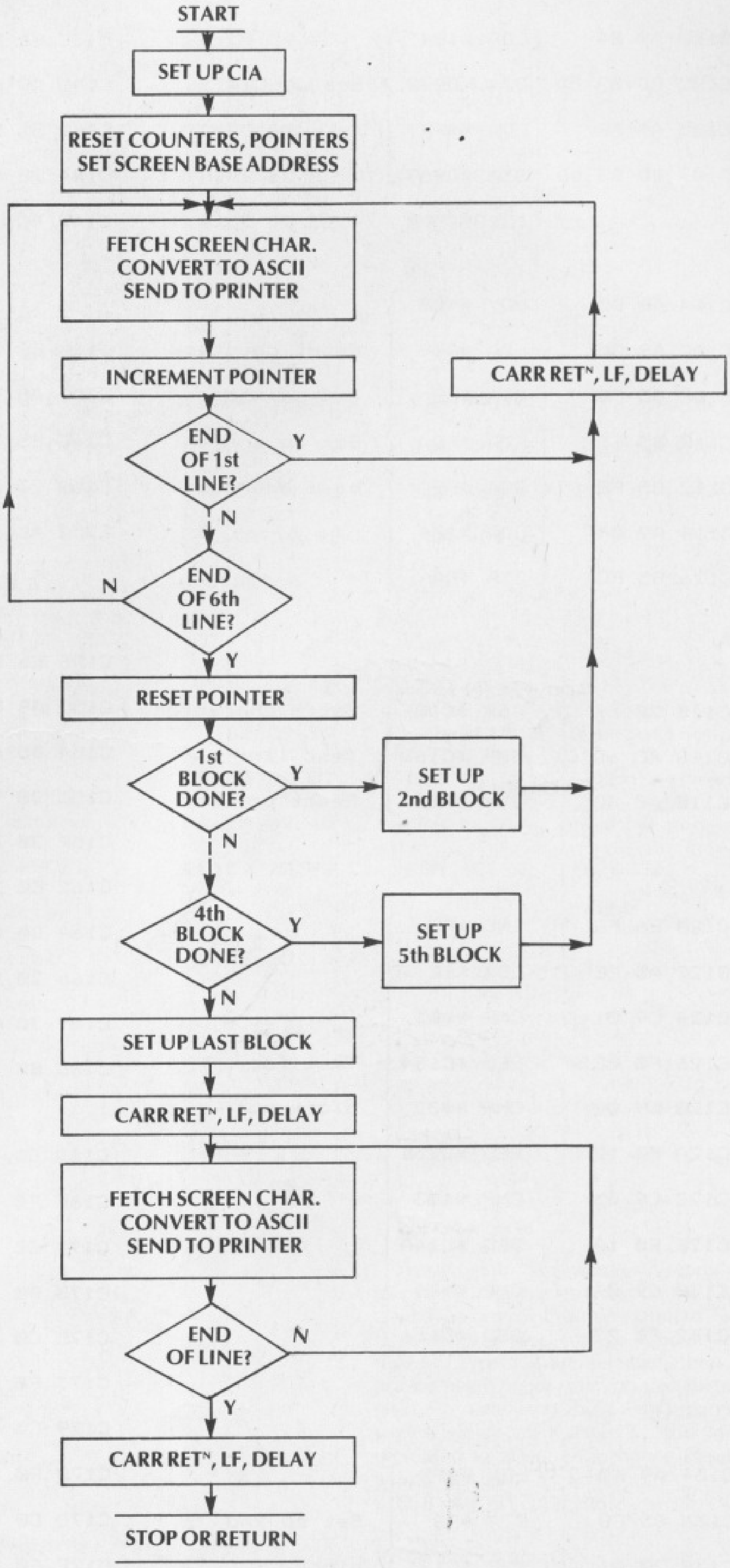

START
SET UP CIA
RESET COUNTERS, POINTERS
SET SCREEN BASE ADDRESS
FETCH SCREEN CHAR.
CONVERT TO ASCII
SEND TO PRINTER
INCREMENT POINTER
CARR RETN, LF, DELAY
END OF 1st LINE?
Y
N
END OF 6th LINE?
N
Y
RESET POINTER
1st BLOCK DONE?
Y
SET UP 2nd BLOCK
N
4th BLOCK DONE?
Y
SET UP 5th BLOCK
N
SET UP LAST BLOCK
CARR RETN, LF, DELAY
FETCH SCREEN CHAR.
CONVERT TO ASCII
SEND TO PRINTER
END OF LINE?
N
Y
CARR RETN, LF, DELAY
STOP OR RETURN

Figure 3

```
1000 C100 A9 04          LDA #$04
     C102 8D 02 DD       STA $DD02      Set up CIA
     C105 A9 FF          LDA #$FF
     C107 8D 03 DD       STA $DD03

     C10A A0 00          LDY #$00
     C10C A9 00          LDA #$00       Reset counters
     C10E 85 FB          STA $FB        and pointer.
     C110 85 FD          STA $FD        Set up screen
     C112 85 FE          STA $FE        base address
     C114 A9 04          LDA #$04
     C116 85 FC          STA $FC

     C118 20 DF C1 LOOP5 JSR $C1DF FETCH Fetch character
     C11B 4C 6D C1       JMP $C16D TEST  Test line
     C11E A0 00    CLOOP LDY #$00       Reset pointer

     C120 E6 FE          INC $FE
     C122 A5 FE          LDA $FE
     C124 C9 01          CMP #$01
     C126 F0 0C          BEQ $C134 LOOP1 Test for
     C128 C9 02          CMP #$02       block no
     C12A F0 12          BEQ $C13E LOOP2
     C12C C9 03          CMP #$03
     C12E F0 1A          BEQ $C14A LOOPB
     C130 C9 04          CMP #$04
     C132 F0 22          BEQ $C156 LOOP4

     C134 A9 F0    LOOP1 LDA #$F0
     C136 85 FB          STA $FB        Set up 2nd
     C138 20 91 C1       JSR $C191 SECBL block
     C13B 4C 18 C1       JMP $C118 LOOP5
```

```
C13E E6 FC LOOP2 INC $FC
C140 A9 E0       LDA #$E0     Set up 3rd
C142 85 FB       STA $FB      block
C144 20 91 C1    JSR $C191    SECBL
C147 4C 18 C1    JMP $C118    LOOP5

C14A E6 FC LOOPB INC $FC
C14C A9 D0       LDA #$D0     Set up 4th
C14E 85 FB       STA $FB      block
C150 20 91 C1    JSR $C191    SECBL
C153 4C 18 C1    JMP $C118    LOOP5

C156 E6 FC LOOP4 INC $FC
C158 A9 C0       LDA #$C0
C15A 85 FB       STA $FB
C15C 20 91 C1    JSR $C191 SECBL  Set up last
C15F 20 DF C1 ILOOP JSR $C1DF ~~LOOP6~~ FETCH block
C162 C0 28       CPY #$28     and exit
C164 D0 F9       BNE $C15F    ILOOP
C166 20 91 C1    JSR $C191    SECBL
C169 20 91 C1    JSR $C191    SECBL
C16C 00          BRK          (Or RTS)

C16D C0 28 TEST  CPY #$28
C16F F0 1A       BEQ $C18B ALOOP
C171 C0 50       CPY #$50
C173 F0 16       BEQ $C18B ALOOP
C175 C0 78       CPY #$78
C177 F0 12       BEQ $C18B ALOOP  Subroutine
C179 C0 A0       CPY #$A0         Test for
C17B F0 0E       BEQ $C18B ALOOP  1 of 6
C17D C0 C8       CPY #$C8         lines per
C17F F0 0A       BEQ $C18B ALOOP  block
C181 C0 F0       CPY #$F0
```

```
                        FLOOP
C183 F0 03      BEQ $C188
                        LOOP5
C185 4C 18 C1   JMP $C118
      FLOOP             CLOOP
C188 4C 1E C1   JMP $C11E
       ALOOP
C18B 20 91 C1   JSR $C191    SECPL
C18E 4C 18 C1   JMP $C118    LOOP5
```

```
     SECPL              DLOOP
C191 20 D4 C1   JSR $C1D4
C194 A9 AA      LDA #$AA     Subroutine
C196 8D EC C1   STA $C1EC    CR,LF with
                    FLOOP
C199 20 BA C1   JSR $C1BA    delay
C19C 60         RTS
```

```
     HLOOP
C19D 8D 01 DD   STA $DD01
C1A0 A9 00      LDA #$00
C1A2 8D 00 DD   STA $DD00
C1A5 A2 00      LDX #$00     Subroutine
C1A7 E8   ELOOP INX          Send ASCII
C1A8 E0 0F      CPX #$0F     character to
                    ELOOP
C1AA D0 FB      BNE $C1A7    parallel
C1AC A9 FF      LDA #$FF     printer
C1AE 8D 00 DD   STA $DD00
C1B1 A9 01      LDA #$01     (See Text)
C1B3 8D EC C1   STA $C1EC
                    FLOOP
C1B6 20 BA C1   JSR $C1BA
C1B9 60         RTS
```

```
              FLOOP
C1BA A9 00      LDA #$00
C1BC A2 00      LDX #$00
C1BE 8D ED C1   STA $C1ED
             GLOOP
C1C1 AD ED C1   LDA $C1ED
C1C4 69 01      ADC #$01     Subroutine
C1C6 8D ED C1   STA $C1ED    Delay
```

```
C1C9 C9 FF      CMP #$FF
C1CB D0 F4      BNE $C1C1  GLOOP
C1CD E8         INX
C1CE EC EC C1   CPX $C1EC
C1D1 D0 EE      BNE $C1C1  GLOOP
C1D3 60         RTS
```

```
                DLOOP
C1D4 A9 0A      LDA #$0A
                    HLOOP
C1D6 20 9D C1   JSR $C19D    Subroutine
C1D9 A9 0D      LDA #$0D     CR, LF
                    HLOOP
C1DB 20 9D C1   JSR $C19D
C1DE 60         RTS
```

```
                FETCH
C1DF B1 FB      LDA ($FB),Y
C1E1 C9 1B      CMP #$1B     Subroutine
                    JLOOP
C1E3 B0 02      BCS $C1E7    Fetch screen
C1E5 09 40      ORA #$40     char & convert
                JLOOP  HLOOP
C1E7 20 9D C1   JSR $C19D    to ASCII
C1EA C8         INY
C1EB 60         RTS
```

```
  90EC
C1EC -    BOX A   -          Temporary
C1ED -    BOX-B              storage
  90ED
```

The program as written will reproduce standard alpha-numeric text on the FX-80 printer. If any of the non-standard functions of the printer, such as condensed or reversed typeface are selected, then the printer needs more delay to complete its task. To cater for this, the apparently useless delay of 1 at C1B1 should be increased to about $0B: hence this line would then read

C1B1 A9 0B LDA #$0B.

Spelling Companion

A small percentage of those using word processors actually take advantage of companion spelling checker programs. Bill Donald tells how Easyspell has not only made life easier, but saved a few red faces.

Most of you are probably aware of how a word processor works and given the plethora of programs available for the Commodore 64, it would indeed be a surprise if you did not. For the benefit of those who are new to the machine or microcomputers in general, a few brief words.

A word processor enables the user to type on to the screen a series of sentences, paragraphs, strings of words or letters which are commonly termed 'text'. This text can be manipulated on the screen by keyboard control. For example, the control can be simple inserting and deletion of text, in either a small mass such as individual letters or as a larger mass such as complete sentences of paragraphs.

This process of manipulation extends to what is termed 'formatting' which means, providing on the screen an indication of how the text will appear on paper, the end product of word processing, which is the printing out of your text. So the format is of great importance. The more comprehensive word processors can search for and change sequences of letters, so rather than keep typing the word 'COMMODORE' I use the word 'CBM' and then instruct the program to change all sequences of 'CBM' to 'COMMODORE' in the text, when I have finished. This obviously, is a huge timesaver and represents only a fraction of a reasonable word processors abilities.

I think that most people tend to think of the subject of word processing in the context of letter writing. This is a pity since this demonstrates only a small proportion of the program's skill. The main use that I have for mine is before your very eyes . . . writing articles for the readers of CCI. Another use I have is combining text from a variety of documents and books to form a lengthy report on individual topics. So word processing forms a major part of the serious usage of my 64.

The program I use is the familiar EASYSCRIPT, which is the Commodore sponsored word processor. It has, and continues to serve me well until quite recently.

I use it quite heavily, typically producing 5000-10000 words per month, and one of the most onerous tasks was the tedious searching for spelling mistakes. EASYSCRIPT like most word processors, does not take too kindly to the two-finger typist technique, the method which I use. I have never been trained to use a keyboard properly, and probably more than likely, never will. These spelling mistakes were not usually the result of grammatical failure on my part, more usually the result of the keys bouncing because of my technique (or accurately, the lack of it!). This resulted in the creation of numerous examples of double letters, which in some instances were quite hilarious, but ultimately needed to be edited out. The tedium of this finally prompted me to look at EASYSPELL, the companion spelling checker program to EASYSCRIPT.

EASYSPELL comes with two disks: the master program disk, the dictionary and finally a user manual. Since the two programs originate from the erstwhile Precision Software, naturally the documentation is designed to, and can, be read by humans — rather unusual for something carrying the Commodore emblem! The spelling checker can only be called from within EASYSCRIPT and the loading time from the program master disk is relatively short.

A menu appears which prompts the user to select from the following:—

1. Check Text File
2. Check with Word Frequency Report
3. Print User Dictionary
4. Delete Word from User Dictionary
5. Search Dictionaries
6. Select Printer Type
7. End Program

As you can see, there is more to EASYSPELL than meets the eye, so let's take a tour of the facilities.

Checking the spelling

The first mode, namely that of checking the spelling of an EASYSCRIPT file is very simple. By following the screen prompts (which are really a matter of running the text file disk), then the dictionary disk, a file statistics screen is displayed. This details the number of words, sentences, paragraphs, along with several other interesting facets of your file. Then it is time for the red faces as EASYSPELL lists out the verbal horrors you have committed. The program then offers a hard copy printout of these, talk about rubbing it in!

It is then time to have the text file edited and this is done by swapping the disks over. EASYSPELL then displays pages of the text you have typed with the errors highlighted in reverse video. Note that these highlights do not necessarily indicate a spelling error, it can also mean that the word is unrecognised by the dictionary. The cursor is brought to life and normal screen editing can take place. You are given the option of designating the word to the User Dictionary or ignoring it totally by pressing either the backarrow key or the F1 key respectively.

When you have worked your way through the text — the time taken depending on the length of the file or how many errors were thrown up, but in general the process is quite fast — the screen then indicates that EASYSPELL is saving your EDITED file, which overwrites the original. Finally, the screen prompts for the User Dictionary disk, and the new words are written into the dictionary.

Note that EASYSPELL purely checks individual words, and not their meaning in the context of the sentence. For instance, if you have typed a word twice, providing that the spelling is correct, then EASYSPELL will parse the word as normal. There are programs available which can, to some extent, check that the grammar is correct, but these are not available at this level of computing. Unfortunately, the intelligent word processor has yet to arrive and, if it ever does, will require memory measured in the multi-megabyte region.

Word Frequency Report

So that's the main purpose of EASYSPELL, but the other options I have found to be equally as useful. The Word Frequency Report function is aimed at those of us who are conscious of writing style. For instance, all of us when we write or speak something tend to use cliches or well-worn phrases. This great human habit is mercilessly exploited by impressionists and satirical magazines such as 'Private Eye' with their 'Pseuds Corner' and 'Ongoing Situations' features. WFR will print a list of the number of times a word is used in a text file, in either ascending or descending frequency of use. So you can avoid the use of the hackneyed phrases containing 'scenario' and 'situation', etc.

The User Dictionary can hold up to 32,000 words, which should be sufficient for most users. Options three and four are merely for maintenance of the dictionary. There is also present on this disk the Master Dictionary which contains 20,000 popular words, usually those which are the most often misspelt. This file cannot be edited since it is meant to be specific to the country of sale. The Dictionary Disk is meant to be copied for backup purposes, since you do not want to lose thousands of your favourite words through a 1541 glitch, and this means that you can nominate empty dictionary disks for specialist areas such as scientific or engineering text, even olde English if you are involved with medieval texts. The other major use of the User Dictionary can be to measure vocabulary development, particularly in an educational sphere. This is done by using a blank dictionary and the WFR on a child's text file; the building of the dictionary can be monitored and assistance given in weak areas.

The Search Dictionaries mode is self-explanatory, but there is once more a useful spin-off. This option allows the user of the Commodore wildcard search pattern, for example, requesting 'B?D' will display or print 'BAD', 'BED', 'BID' 'BOD' and 'BUD', assuming that these are in the dictionary. So if you are struggling with a ten letter word such as '---Y-C-I-T' in that fiendish crossword, help is close at hand, (the answer is a well known program!).

The final two selections are once more self-explanatory; the printer definement being identical to the EASYSCRIPT selection of CBM Serial, IEEE or RS-232 printers, whilst termination leads you back to the EASYSCRIPT startup menu.

Conclusions

Drawbacks of EASYSPELL? Well there are two, a major and minor. The program will not support two 1541 drives, which means disk swapping. Note that EASYSCRIPT does support two drives up to a point, you have to return to the startup menu and redefine drive numbers. Ironically, EASYSPELL does support dual drives, such as the 4040, but I have pointed out in several previous reviews of software, this is academic to 95% of 64 owners, since a good second hand 4040 drive will cost £300+ and then there is a further £60 required for the IEEE interface.

The minor criticism is that during editing of lengthy files, the starting letters in words beginning a paragraph can get chopped out, this being due to the editing process bunching paragraphs into each other. However, the maximum number of letters lost appear to be three, so reconstruction of the words is not too difficult. Since EASYSPELL does support linked files, this is the obvious solution to using long files.

If you are really serious about your word processing and are producing in excess of 2000 words per month, then you should consider a spelling checker. I was very pleased with my purchase of EASYSPELL. It is one of those programs which once you have acquired it, makes you wonder how you managed without it before; a strongly recommended buy. It represents the icing on the EASYSCRIPT cake.

Contact: Commodore (UK) Ltd, 1 Hunters Lane, Weldon, N. Hants. Tel: 0536 205555.

CCI

64-STATSPOWER

The professional statistics package for business users.

Indispensable for analysing data and for forecasting.

Features:

- Summary statistics, multiple regression, moving averages, deseasonalisation, analysis of variance, chi-square tests, t-tests.
- Accepts data either from keyboard or from sequential files.
- Optional screen dumps to printer.
- 27 page comprehensive manual with numerous worked examples.

Disc £25 (incl p&p)

Payment by cheque, Access, or Visa (quote card number and expiry date)

Please supply __________ copies of 64-STATSPOWER at £25 each. I wish to pay by cheque/Access/

Card No.____________________ Expiry date__________

Name______________________________

Address______________________________

Scientific Software

39, Main Street, Howth, Co. Dublin, Eire. Ph. 326703

SJB DISKS LIMITED

BLANK DISKS

Top Quality 5¼" Bulk Packed Disks

Supplied in 10's with a **FREE** Plastic Library Case, Labels etc

10 Single Sided/Double Density*	ONLY **£13·95**
10 Double Sided/Double Density*	ONLY **£17·95**
50 Single Sided/Double Density* (Supplied with a Perspex Storage Box)	ONLY **£59·95**
50 Double Sided/Double Density* (Supplied with a Perspex Storage Box)	ONLY **£74·95**

★ LIFETIME WARRANTY ★
★ FREE FAST DELIVERY ★

All prices are inclusive of V.A.T.
Delivery **FREE** throughout the U.K.
3" & 3½" Disks also available
Bulk Orders, Export Enquiries & Educational Enquiries Welcome
Double Density is the equivalent of 40/80 Track

Please Send Cheques/Postal Orders to:-
SJB DISKS LIMITED **(Dept C.C.)**
11 Oundle Drive, Nottingham, NG8 1BN
Telephone (0602) 782310

Is this the end?

No, but it's an in-depth look at The Final Cartridge. Last month we looked at this utility disk's fast loading aspect, here Ray Medford looks further

the final cartridge

It is quite commonplace to read criticisms of the 'slow' 1541 Disk drive these days. How quickly we forget the interminable waiting when the only choice we had was tape! Now, with the widespread use of disk, several companies have heeded the pleas of the folk to whom time is money and have produced fast loaders in one form or another. During my visit to the Commodore Show in June I was presented with the very welcome Show Guide and in it was an advertisement for the FINAL CARTRIDGE, the subject of this review.

The specification was positively mouth-watering and on my return home I wasted no time in writing to H&P Computers in Rotterdam to ask for more details. Within days — a pleasant surprise in itself — I received an answer, including a copy of the 'manual', a seven-page single-sided A4 sized document in English which included complete descriptions of the comprehensive facilities.

The cartridge is not cheap at £50, but a brief wrestle with my conscience and several references to the specification sufficed to sway me. So without further ado away went my cheque and I forgot about the whole thing (except for waking up at 3 every morning for the next nine days, just in case the postman decided to come especially early!).

Fifty Pounds buys a very comprehensive product indeed! Centronics Printer interface; Pre-programmed Function Keys; BASIC 4.0 and Disk DOS commands; a toolkit; on/off switch; reset button; low and hi-res Screen dumps; a cassette Turbo to load and save programs 10 times faster; a Machine Language Monitor; 20K extra RAM and finally, a Disk Turbo to load and save six times faster than normal. Impressive! However, in the space available I have chosen to examine in detail a few only of the facilities offered.

Features

TOOLKIT

The Toolkit provides the following, all of which work as claimed:

AUTO: Gives line number in BASIC programming. Eg: 100,10 to start at 100 with increments of 10.

DEL: Deletes a line or block of lines as specified. Eg: DEL 100-250 deletes all lines between the given parameters.

OLD: Recovers a program after a reset on NEW command.

RENUM: Renumbers a BASIC program, including goto's and gosub's. (RENUM 10,5 starts at 10 with an increment of 5).

FIND: Searches for lines containing the given string, word or command.

IE: FIND "TEST" lists every line containing the word "TEST".

FIND a$ lists every line containing the variable a$.

HELP: Lists a BASIC line which contains a mistake.

APPEND: As DAPPEND but for cassette.

DOS COMMANDS

CATALOG: Lists Directory to Screen without affecting program in memory.

DAPPEND: Merges BASIC programs from Disk.

DISK: Reads the error channel.

DLOAD: Turbo loads program 5 times faster from Disk.

DSAVE: Saves program 5 times faster to Disk.

DVERIFY: Verifies a program in memory with that on Disk.

Other Commands

LIST: Lists BASIC program and *removes List protection* if any.

MONITOR: Switches on ML Monitor.

OFF: Switches off all functions of FINAL CARTRIDGE.

CTRL/HOME: Puts the Cursor in bottom left corner of Screen.

CTRL/DEL: Deletes everything after the Cursor on the same line.

Note: Commands can be abreviated in normal fashion. Eg: L shift O LOAD.

FUNCTION KEYS

F1: LIST F2: MONITOR
F3: RUN F4: OFF
F5: DLOAD F6: DSAVE
F7: CATALOG F8; Disk Command

Eg: F8 [return] reads error channel.
F8 [N:name, id] + [return] will format Disk.

Using the Function Keys you can, for example, load the Directory [F7] then cursor up to the program wanted and press [F5] to DLOAD.

Printer

A major facility of the Final Cartridge is the provision of a Centronics Interface. H&P can provide a cable if required but I have found that the Audiogenic or Stack leads also worked correctly. Several options are available, enabling most printers to be used, with the ability to print all Commodore characters and control codes if required.

The command OPEN 1,4,4:CMD 1: LIST will list a BASIC program including Commodore characters and control codes. Enter OPEN 1,4,3 for normal print, using Control and ASCII codes as per your Printer Manual.

Additionally there is the ability to obtain either low or hi-res screendumps from any printer with a Bit Map mode. Some of the dumps from 'Doodle' were particularly impressive.

CTRL/L: Low-resolution dump
CTRL/H: Hi-resolution dump
CTRL/I: Rever print hi-res dump

Note: There is no need to provide start addresses as there is a routine to search for the correct address automatically.

Tests with various programs gave mixed results. Mostly the cartridge worked as stated, but there were a few instances when it was not possible to obtain hi-res dumps.

Monitor

Monitor mode can be entered by typing MONITOR, by pressing the F2 key or by pressing the Commodore key and reset. Commands are:

G: Start an ML program.
L: Load from Disk or cassette.
S: to Save to Disk or cassette.
M: Display Memory.
F: Fill memory.
H: Hunt Memory.
C: Compare (compares several parts of memory).
T: Transfer memory.
O: Bankswitching.
A: Assemble.
D: Disassemble.

On entering the Monitor, one is presented with the Register display with the cursor flashing to the right of the . on the next line. To begin Assembly enter A and the start address followed by the Scource Code, assembly is automatic when return is pressed with the object code appearing on the left of the line as per the following simple example:

```
.A 2000 AD 12  LDA $12
.A 2002 8D 00 80STA $8000
```

Any errors can be corrected using the usual screen editing facility.

The Monitor is very easy to use and ideal for having 'a quick look' at all sorts of programs, even changing them if required by using the 'M' option. Particularly as the cartridge shows start and end addresses of most programs at the time of loading.

Fast Load and Save

Finally, to the matter of fast load and save.

Simply, in comparison with three other fast loading cartridges, the Final Cartridge was found to be consistently the fastest, with times from a 202 block load of 23 secs as opposed to 128 secs without cartridge, a 5.56 times increase. More than worthwhile.

Saving was a different matter. The best that I could achieve was 32 secs for 148 blocks, with a normal time of 109 secs. A 3.40 times increase is better than nothing of course, but a little different from the advertised claim. In fairness, no worse in this respect than competitors offering similar claims. But not six times faster.

There is also a problem in loading some commercial programs from disk. The cartridge can always be switched off with difficult cases but how much better if this didn't happen. And for those who use two 1541 drives, programs will not load with both drives on. It is okay to switch the second drive on afterwards, so any programs that use two drives can still do so.

Conclusions

The FINAL CARTRIDGE definitely offers good value for money. As a fast loader it is as yet unbeaten and the sheer convenience of the total package means that it is the one I now use most of the time.

The Final Cartridge: Contact
Home and Personal Computers,
3083, MT Rotterdam, Holland.
Tel: 010-311 0861 870.

CCI

FAST LOADERS TO DISK COMMODORE 64 1541 DISK DRIVE TAPE FAST LOADERS

MEGA-TRANSFER DISK £16.00

A mighty collection of routines which will efficiently transfer an extremely wide range of fast loading tapes to disk. General purpose routines to transfer Nova, Pav, Burner, Flash, Hyper, CBS loaders and others. A huge menu of individual routines for unusual loaders, including combination slow/fast loaders, the latest sports simulations and top arcade and adventure games. General purpose routine for those difficult U.S. slow loaders which even Diskus 1 can't handle. And transfer routines for programs recorded using R.B.S., Fastback and Hypersave-64. Includes a program identifier. All transfer is automatic. No user knowledge required. MEGA-TRANSFER DISK is the finest transfer utility available for fast loading programs. Don't settle for less.

MEGA-UTILITY DISK £11.00

1. ALPHALOAD Disk Turbo Loader. Add this short program to each of your disks and your programs will load at over FOUR times the normal rate. No menu is required and you DON'T have to load Alphaload separately. Example: 200 blocks. Normal speed 130 seconds — with ALPHALOAD just 30 seconds.
2. FAST COPY. A high class single drive whole disk copier. Backup a full disk in a little over three minutes. Will handle many commercial disks but not if heavily protected.
3. A multi option FAST disk formatter and a single file transfer routine which will handle program files of any length.
4. DISK TO TAPE. Transfer any single disk program to tape (fast load). No memory conflict. Will handle programs of 200 blocks and more.

DISKUS I £11.00

The premier tape to disk transfer utility for your slow load tape collection. Multipart, Headerless, and autorun programs are all catered for. No user knowledge required. Diskus I has provision for program types which no other utility can handle. Supplied on disk.

DISCOUNTS!! Any two of MEGA-TRANSFER DISK, DISKUS I or MEGA-UTILITY DISK (single disk) £23.00. ALL THREE just £29.00. Or try our FULL RANGE DISK (every program in this Ad plus our high quality Sprite Editor, PRO-SPRITE, and tape backup/header reader at £35.00 (disk only). Megadisk owners. Send Megadisk instruction sheet or Megadisk for £12 credit against any offer in this Ad over £20.

!! TAPE SPECIAL !!

RAPID BACKUP SYSTEM (R.B.S.). Convert your slow loading tapes to TURBOLOAD. Multipart and autorun programs are handled with ease. No user knowledge required. R.B.S. will convert more programs than any competing utility.

HYPERSAVE 64. Retaining the flexibility which the programmer requires, Hypersave leaves you in control. Save/load/verify up to 48K continuous at HYPERSPEED.

SPECIAL SUMMER OFFER! BOTH PROGRAMS JUST £7.00 if you mention this Ad. (Programs available individually at £5.00 each.)

All programs for the Commodore 64. Send SAE for full details or cheque/PO for fast despatch to:

DOSOFT, (DEPT Y) 2 OAKMOOR AVENUE, BLACKPOOL FY2 0EE

U.K. Postage included. Europe please add 75p, Overseas add £1.50 for airmail.

Payroll Paradise

Now that the government, in all its wisdom (ha ha), has decided to complicate the National Insurance payment scheme even more by now scaling it on a percentage basis.

This will satisfactorarily ruin any small businessmans system totally. To try and make life a little more bearable, Studio Software have released a program you will need a 64 or 128, a disk drive and a printer. Payroll-64 will cost £49.95 including VAT.

Contact: Studio Software, Wootton Hall, Wootton-Wawen, Warwickshire. Tel: 05642 3467.

Mix that Text

Tashkl Computer Systems have announced the release Inset. Retailing at £195, it allows you to merge text and graphics, and print out the finished product on a wide variety of compatible printers such as the Epson and Toshiba range.

Inset resides in only 75 kilobytes of memory, and will allow graphics from graphics programs to be successfully merged with documents from word processors.

Contact: Tashkl Computer Systems. Tel: 01-904 4467.

Precise Micropro

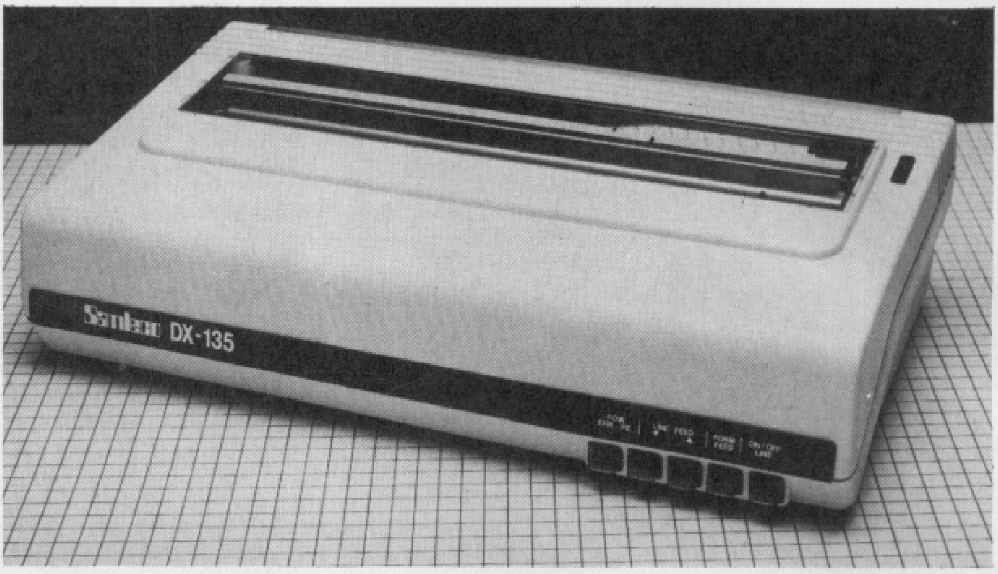
Micropro International Ltd, have aquired the sole UK marketing and distribution rights to the new Superscript word processor from Precision Software.

Designed to run on the 6502 based range of machines, it will be specifically for the 64 and 128. Superscript will now be sold with packaging saying 'Superscript — from the makers of Wordstar'.

Price will be around £80.00 + VAT for the basic version.

Contact: Micropro (UK) Ltd, Haygarth House, 28/31 High Street, Wimbledon Village, London SW19 5BY. Tel: 01-879 1122.

132 Columns for Less Cash



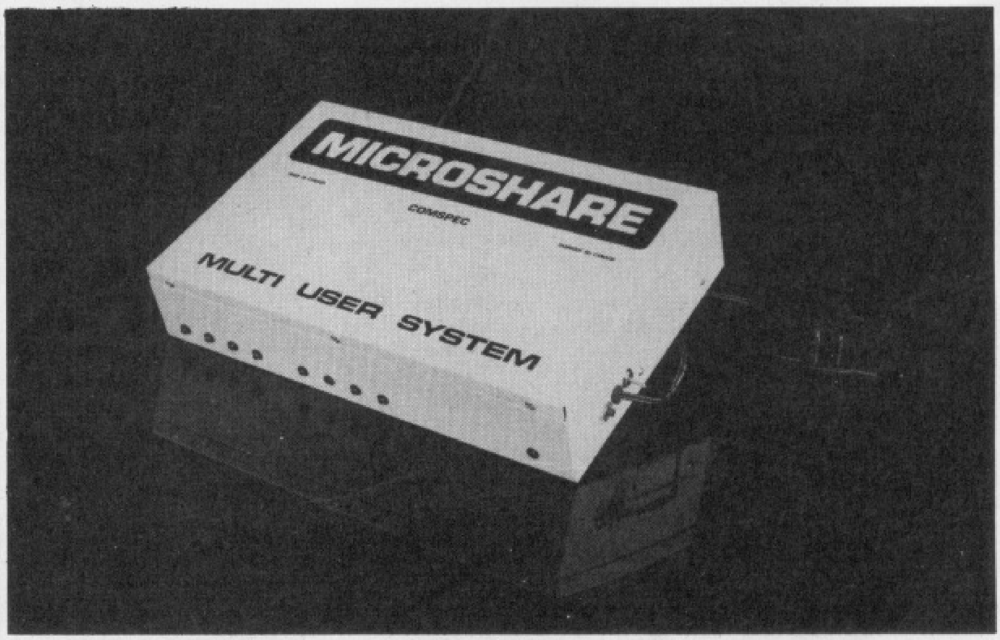
A 132 column printer can be of use to almost anyone who regularly prints spreadsheets or personal notes. Until now however they were quite costly, ranging from around £500-£1,500.

Samleco have now announced their DX135, aggressively priced at £295 + VAT it comes with a choice of interfaces which should make it compatible with most Commodores (although an interface will be necessary for the 64).

Printer at a speed of 120 cps, means it can produce neat draft — fast.

Contact: Samleco, SCS House, 9 Fairacres Industrial Estate, Dedworth Road, Windsor, Berkshire SL4 4LE. Tel: 07535 54717.

Share and Share Alike



Comspec Communications Incorporated, a Canadian firm, have recently announced a range of products for 64 or VIC-20 owners who could share printers or other peripherals.

The Commodore Multi User System allows up to eight users to share disk drives and/or printers. As well as this it has built in IEEE and Serial ports.

Combined with a built in 14K buffer (expandable to 30K), and comprehensive error detection and removal it amounts to a very powerful system.

Comspec also produce other multi user systems of equal quality. Priced at around £525 it should be suitable for Educational or Business users.

Contact: Comspec Communications Inc, 153 Bridgeland Avenue, Unit 5, Toronto, Ontario, Canada. Tel: (0101) 416 787 0617.

60K Basic Programs!

That's right! How you can have up to 61440 bytes of BASIC program in your Commodore 64 at one time, with no hardware modifications, thanks to this program by Richard Darling

All you need to do is type in the program below. When you run this (providing you type it in correctly), you will then be able to save the short machine code program which it generates. From then on whenever you want to use more than the normal 38K available for BASIC just LOAD and RUN the program and it will 'open up' the memory banks for you.

Why only 38K normally?

As you were probably told many times when you bought your Commodore 64, it has 64K of RAM. The thing is, it also has other memory to take care of, ROM and input/output etc. Since BASIC requires the use of this other memory and the computer can only handle a TOTAL of 64K at a time, some of the precious RAM is covered up, making it useless from BASIC. In fact it leaves 38911 bytes free for BASIC.

How it works

What my program does is allow you to have two separate banks of memory for BASIC storage. Each of these is 30K long. Bank 1 is in the normal BASIC work area, so LIST, RUN, SAVE, LOAD etc work on it perfectly normally. To get to bank 2, which is covered up by ROM, just type SYS 32768 (RETURN). This will swap the two banks around. So now you have a clean 30K to work with, leaving your other 30K safely tucked away up high in memory!

The command SYS 32768 can be executed from within a program or from direct mode. If it is done from within a program then the bank 2 program will execute from the begining.

Some of you are probably wondering what happened to the OTHER four K. Well . . .

One is used to store system variables.
One is used to store the screen.
One is used to store the bank switching program.
One is wasted because the 64 leaves mysterious values there.

(Even Commodore themselves don't seem to know why!)

How to use it

Once you have the program installed you can immediately use the lower bank to store a program up to 30K long. If you add to this program and it gets close to using all the room then you can begin to use the second bank. The only slight problem is in passing values between the two programs.

For example, you may have a long adventure game split into two parts, each stored in a different bank. When the player completes the first part you can begin part 2 simply by having a line which says SYS 32768. This will switch the banks and RUN part 2 from the start. However it is not only the programs which are switched, it is the variables as well, so if you want the players attributes (Strength, score etc) to remain the same in part two of the game you will have to store these values somewhere for part 2 to see.

This is easily done, since there is a convenient area of memory which doesn't get touched by the switching and is not used for much else. This is from location 828 to 1019. So, you can POKE values to these places before switching, then PEEK them again afterwards. Don't forget that each of these bytes can only contain integers from 0 to 255.

Entering the program

The actual program which you will use to get more memory is in machine code, which cannot be typed in directly without a monitor. For this reason the listing you see is a BASIC program which will generate the machine code program when it is RUN. To get at this machine code type SYS 33030. Now the machine code is where your BASIC used to be, so you can save it to tape or disk. This is the program which you will use, you won't need the BASIC one again.

If the totals displayed when you RUN the program are different then don't type SYS 33030, because you typed the DATA incorrectly and the program will not work.

So . . . by now you should have a short machine code program SAVED. Whenever you want to use more than 38K for BASIC just LOAD and RUN this program. Type NEW and it will seem to have disappeared. But now the memory is set up so that whenever your computer encounters SYS 32768 it will switch between the two banks of 30K. Now you can LOAD or TYPE your programs into this elephantine memory!

```
100 I=32768
110 READA:IFA<>-1THENPOKEI,A:I=I+1:T=T+A:GOTO110
120 IFT=29034THENPRINT"█NOW SYS33030, THEN SAVE":END
130 PRINT"THE TOTAL IS"T" AND SHOULD BE 29034":END
200 DATA12,8,10,0,158,50,48,54,52,58,0,0,0,0,0,162,0,189,65,8,157,0,128,232
210 DATA208,247,189,254,8,157,0,129,232,208,247,169,0,157,0,132,232,208,250,169
220 DATA128,133,52,133,56,162,0,189,154,8,240,7,32,210,255,232,76,52,8,96,165
230 DATA157,201,128,240,3,32,142,166,120,165,1,41,252,133,1,169,0,133,251,133
240 DATA253,169,8,133,252,169,132,133,254,160,0,177,251,170,177,253,145,251,138
250 DATA145,253,200,208,243,230,252,230,254,165,252,201,128,208,231,165,1,9,3
260 DATA133,1,169,128,133,52,133,56,88,162,0,181,43,168,189,0,129,149,43,152
270 DATA157,0,129,232,224,8,208,239,96,219,13,54,48,75,32,70,82,69,69,32,70,79
280 DATA82,32,66,65,83,73,67,46,32,66,89,32,82,73,67,72,65,82,68,32,68,65,82,76
290 DATA73,78,71,13,18,32,32,32,84,87,79,32,66,65,78,75,83,32,79,70,32,51,48,75
295 DATA32,78,79,87,32,65,86,65,73,76,65,66,76
300 DATA69,32,32,32,13,13,83,89,83,32,51,50,55,54,56,32,84,79,32,83,87,73,84,67
310 DATA72,13,0,1,8,3,8,3,8,3,8,32
400 DATA162,0,189,0,128,157,1,8,232,208,247,189,0,129,157,1,9,232,208,247
410 DATA169,16,133,45,169,9,133,46,96,-1

READY.
```

CLASSIFIED

Disk Menu Load basic programmes by number options from MENU, format disk, customise screen colours & print directory listing. Supplied on disk or tape @ £10 or SAE for details. CCS Computer Services, 14 Kirfield Dr. Hinckley, Leics. LE10 1SX.

Look! Free membership. Swap your used or unwanted Commodore software. First swap free! Send S.A.E. to Software U.K. (C), 85 Malmesbury Road, Cheadle Hulme, Cheshire, SK8 7QL.

For all CBM64 users who don't want to pay top prices, simply join Soft Byte. For details send SAE to Soft Byte, 74 Crofton Way, The Ridgway, Enfield, Middx.

Swap Elite cassette for Star Wars or Gyruss by Parker Bros. Write or call 62 Pert Close, Muswell Hill, London N10.

Disk sale – I want to sell non-used disks for £15 for 10. Search contact too. Everyone is welcome. Schuster Yann, 47 av. Mathurin Moreau. 75019 Paris, France.

PET 32K with twin double sided disk drives and cassette unit, includes manuals and disk + cassette software, bargain at £200. Tel: 0742 347551.

CBM64 – International Tennis £5, Ghostbusters £5, Black Thunder £4, Caverns of Sillahc £4, Hercules £3, Gammaraon and Starforce for £3.50. All v.g. condition, all originals for sale. Phone Steven (01)-459 7655.

CBM64 plus programmers reference guide, dust cover, various software including Adventure Writer. Cost £260. Plus Computer Chess; large sensory board and chess pieces. Cost £86. Both boxed as new. £120 o.n.o. 01-204 1938.

Commodore 64 and C2N £130. MPS801 & two ribbons £130 both ono. Write to P Jennings, 15 Birchfield Road, Coundon, Coventry W. Midlands.

Vic 20 £30, 16K switchable RAM plus motherboard with ROM for extra commands £30, Sargon II Chess £5, Star Battle £5, games tapes £2 each. Tel: Andrew 01-777 5522.

Commodore C-16. Two brand new shrink wrapped games – Xargon Wars, unwanted gifts. Brand new C-16 games book. All £4.75 each including postage. Contact Jonathon, 35 Kingfisher Crescent, Cheadale, Staffs ST10 1RZ. 0538 755632.

Wanted Stat 64 cartridge by Handic. 051 630 1572.

Games for sale – Damsel in Distress £1, Krypton £2, Supertape fastload saver £5 and Bomber 50p, Aintree £1 and many more. Tel: (0703) 444782 after 4pm, except weekends (all day) for details C64.

CBM64 software to swap, over 100 disk library of public domain programmes. Swap tape or disk. Send list to Carl Bogardus, 1220 Birch Drive, Las Crucls, New Mexico, 88001 USA.

Commodore 64, C2N unit, Vic 1525 graphic printer, hard carry case and other accessories. All under 2 years old. £275 o.n.o. inclusive. Chris Barnett, 23 Farnhurst Road, Barnham, W. Sussex PO22 0JS. Ring Yapton (0243) 552578.

HERE'S MY CLASSIFIED AD

Please continue on a separate sheet of paper for trade advertisements.

I make this ________ words, at ________ per word so I enclose £ ________

Name ________

Address ________

________ **Telephone** ________

Send your classified entries to:
Classified Department,
Commodore Computing International Magazine,
40 Bowling Green Lane,
London EC1R
Tel: 01-278 0333

Private readers — Free (max. 32 words)
Trade advertisements — cost 40p a word
Semi-display — why not make your advertisements more substantial by choosing the semi-display rate. It is only £8 a single column centimetre.
Please ensure that **all** classified advertisements are prepaid.

CLASSIFIED

Coljon's Error Copier

At long last a program that will copy at least 99% of Protected software. *We must stress that this program should only be used to copy your own software for backup purposes.* The Program is fully menu driven and very easy to use. Plus we have included a small suite of utility programs at no extra cost. These include the following:–

1. *FAST COPIER. (Approx 1.5 mins).*
2. *FILE SCRATCH & RECOVERY.*
3. *QWERTY WRITER. (Mini Typewriter).*
4. *FAST FORMAT. (Approx 10 secs).*
5. *REMOVE DIRECTORY. (No listing).*
6. *PRINT DIRECTORY. (Just press a key!).*
7. *CHANGE HEADER ON DISK.*
8. *A to Z. (Sorts Directory).*
9. *DISK TURBO-LOADER (4-5 times faster).*

If you look through the various magazines you'll know that program copiers range from £15 – to £30 – We believe *"ERROR COPIER" is one of the CHEAPEST* and probably the *QUICKEST* to use (664 blocks in approx 5-6 minutes)!

So, how much does it cost, well just £12.95 plus 30p for P&P *(Disk only).*

Please send your cheques to:–

NORTH: *Mr. C. Semple, Dept (EC/CBM64), 35 Manor Road, Rushden, Northants, NN10 9EX.*

SOUTH: *Mr. J Anderson, Dept (EC/CBM64), 8 Azile Everitt Hse, 22 Blendon Terr, London, SE18 7SR.*

IF YOU CAN MEET
THE MIND CHALLENGE OF

Hit & Miss

DEMAND YOUR COPY NOW!

COMPLETE WITH FREE POSTER

BEFORE ITS TOO LATE!

Commodore C16/Plus 4

VENTUREGATE · LTD

COMMODORE REPAIRS

BY COMMODORE APPROVED ENGINEERS

VIC 20 modulators £6.50, VIC 20 from £14.50, CBM 64 from £18.00, C2N from £7.00, Printers, Disk unit etc., for more details, write or telephone

G. C. BUNCE AND SON
36 BURLINGTON ROAD,
BURNHAM, BUCKS SL1 7BQ
Telephone: (06286) 61696

GADGET 64 £5.95

This 100% machine code CBM64 cassette utility offers: Append, Delete, Renumber (including Goto, Gosub, etc.) Satisfyingly simple to use. Send your Name, Address & P/O or Cheque for £5.95 (P&P Free) to:

J&J GILMOUR LTD,
Dept CI985, 4 Copse Close, Liss,
Hampshire, GU33 7EW, England.
Tel: 0730-893430.

PROFESSIONAL
COMMODORE REPAIRS

The complete Commodore Service Centre

We have all the spares in stock to give you a FAST and RELIABLE SERVICE

Commodore 64	from £14.00
Vic 20	from £10.00
C2N	from £ 8.00
Modulators	from £ 8.00
1540/41	from £18.00

- ★ Full telephone diagnostic and estimate service available
- ★ Six months warranty on all repairs
- ★ Above prices inclusive of labour and return of postage. Parts extra.

RING 0234 213645 NOW!

Send faulty items with description to:–

ZEDEM COMPUTERS LTD
2 Kimbolton Road, Bedford, MK40 2NR
(Trade and overseas inquiries welcome)

ASTROLOGY for beginners

Special Starter Pack for only £11.50

Consists of a simple program to calculate a horoscope, an introductory booklet & 2 self-teaching programs (how to interpret the horoscope).

No previous knowledge required

For the Commodore 64/PET 3000, 4000, 8000. Also wide range of programs for **experienced astrologers**

Cash or Access (+50p outside UK, +£2.50 disc) or large sae for free catalogue to:–
ASTROCALC(Dept CI) 67 Peascroft Road,
Hemel Hempstead, Herts HP3 8ER.
Tel: 0442 51809

EPROMS

Hitachi 2764 250nS (8K)
1-2 pieces **£3.95.** 3+ **£3.50**
BLOWERS/ERASERS/CART's

PRM-64 programmer **£39.95**
D1 Eraser (3 Eproms) **£21.95**
D2 as D1 + 15 min timer **£26.50**
64-Cart Cartridge Case/PCB
takes 2 × 2764 **£6.85**

*Prices **include** VAT, UK P&P*

SILICON CITY, Dept C
1 Milton Road, Cambridge, CB4 1UY
Access/Visa. **Tel: 0223 312453**

COMMODORE REPAIRS

VIC 20's — £12.50
C64's — £15.00
1540/41 — £20.00

and all Commodore systems. Send faulty machine with note describing fault to:

TRIDENT ENTERPRISES LTD,
37 Linden House, Common Road,
Langley, Slough, Berks SL3 8TT
Tel: (0753) 48785

(Above prices are exclusive of parts, p&p and VAT). Field Service and Maintenance contracts available. Overseas enquiries welcomed. We also repair QL's, BBC's and Spectrums.

ATTENTION
COMMODORE DISK OWNERS

FED UP WITH 'Cutting' your disks up? With new Disk-Switch that's a thing of the past . . . simply turn the disk over, flick the switch — hey presto you can now read/write from that side of the disk! Requires no software and a child of 12 can fit Disk-Switch in under 5 mins. You can even use single sided disks. Comes complete with full instructions. Disk-Switch will save you pounds on buying unnecessary disks. Please send a Cheque/P.O. for £12.95 to:—

Semplesoft, 35 Manor Road, Rushden,
Northants NN10 9EX. Tel: 0933 53791

RACENIGHT 64 – £4.95

Run your own Racenight this Xmas.

Exciting new Horseracing Game – Ideal for Party's. K. Palmer, 59 Old Park Road, Sheffield S8 7DS. Tel: 0742 749498

MOONRAKER £6.95

CBM64 Space Game features fast —
● Fly-Into Rolling Radar Display
● Infra-Red Target Screen, Altitude, Time, Score Indicators, Fuel/Purchase Option, Promotion! Send your Name, Address & P/O or Cheque for £6.95 (P&P Free) to:

J&J GILMOUR LTD,
Dept CI985, 4 Copse Close, Liss,
Hampshire, GU33 7EW, England.
Tel: 0730-893430.

"dialog...

Professional Bu

for the CBM

C64 / C128

TRANSACT
Book-keeping System

TRANSACT is a Book-keeping System and Nominal Ledger package
Provides a flexible alternative to manually operated sytems
Observes normal accounting conventions
Suitable for Accountants and small business applications

Transaction Files emulate the manual Books of Prime Entry Sales, Sales, Purchases, Bank and Petty Cash transactions types
Standardised and fast Input format
Optional down-calculation of VAT & Net transaction values
Automatic Assignment of Debit and Credit Values
Validation checks to ensure that entries balance
Double Entry principals maintained at all times
VAT Input and Output accumulations recorded separately
Journal facilities provided for Accounts adjustments
Standard Reports & Audit Trail to screen and printer

Accounts File emulates the manual Nominal Ledger
100 Accounts available under 10 Section Headings
Bank, Cash, Debtor, Creditor & VAT Controls are pre-set
Two Accounts reserved for Accrual and Prepayment adjustments
Remaining 90 Account Headings may be defined and/or amended
Account Balances are updated by each Transaction File created
View or Print Account Heading, Balances & Section Totals
Full Trial Balance printout excludes null Accounts
VAT payments and rebates controlled through Clearance Account
Produces Profit & Loss figure and 'quick' Balance Sheet

Price Cassette £29.95 Disc £34.95

SALES LEDGER
and invoice processor

Open Item Accounting System
Fast creation of invoices from product tables
Multiple rates of VAT allowable on invoices
Suspense accounts for 'unrecognised' payments
Trade and settlement discounts allowable
Extensive reporting to screen and printer
Clients referenced by name or part name

Create Invoices and Credit Notes
Receive and Allocate payments
Print individual Statements of Account/Account Enquiries
Amend Terms
Amend Client Details
Suspense Accounts featuring automatic transfers of unallocated payments

Outstanding Invoices
Full Transaction Reports
Full Statement Runs
Monthly Sales Reports
Aged Debtors Lists
Mail Labels for clients Names and Addresses

Auto Invoice Numbering
Monthly deletions of paid invoices
Deletion Reports
Change date option

Requires no additional hardware
Runs on single or twin drive systems

Price Disc £34.95

PURCHASE LEDGER

Open item Accounting System, Automatic payment runs, Print remittance advice notes, Allows for settlement and trade discounts, Cheque writing capability, Extensive reporting to screen and printer, Suppliers referenced by name or part name

Allocate payments or part payments against, Supplier invoices, Account Enquiries, Amend Supplier Terms, Amend Supplier Detals, Suspense Accounts for prepayments

Outstanding Supplier Invoice Reports, Full Transaction Reports, Monthly Purchase Reports, Aged Creditors Lists, Mail Labels for Supplier Names and Addresses

Monthly deletions of paid invoices. Deletions Reports, Change date option

Requires no additional hardware, Runs on single or twin drive systems

Price Disc £29.95

Business Software

STOCK-AID
Stock Control System

Single Screen Format displays:
Reference: Unique Stock Code/Description/Supplier
Prices: Current Unit Cost/Current Unit Sale
Inputs: Units Bought & Value to date + number of Transactions
Outputs: Units Sold & Value to date + number of Transactions
Re-orders: Minimum Stock Level/Units to re-order & Value
Update: Balance & Value of Stock/Profit of Sales

Enter & Amend Reference/Prices/Minimum & Re-order levels.
Delete Record where no Stock remains.
Input & Output Stock as Transactions or Adjustments.
Recall last entries on Inputs & Outputs with process dates.
Browse through File 'window', retaining current record on view.
Find a Record by its Stock Code.
Display previous or following Record on File.
Print Record on view.
Compare last unit Cost & Sales Prices with Current preset Prices.
Update total Number of Lines, Stock Value, Inputs & Outputs.

Scan Reference fields by either order-of-input or sorted sequence.
Available to Screen or Printer are:
Re-order Stock Schedule: Stocks below preset Minimum levels.
Valuation of Stock in Hand: Balances carried forward.
Deletions: Reported by Reference only.
Output to Printer only:
Financial Report: Inputs & Outputs to date.
Current Prices - Unit Cost, Unit Sales & Margin.
Physical Stock Take Sheet: Space for 'actuals' & 'differences'.
Transactions Report: Inputs & Outputs for process date.

Rename File
Sort File by any Reference field.
Disk Directory/Format Data Disk
Printer - Line Feed & Controls
Decimal Placing for Units & Prices

Price

Disc. £34.95

DFM DATABASE
& Mail Labels.

Fully user definable Record Base
Create up to 15 Fields per Record
Define Field Headings Fields may be Alphanumeric
(up to 36 characters)
Fields may be Numeric to 9 figures (zero 2 decimal places)
File Name may be changed at any time

Find Record by Key Field or (allocated number)
Amend Field Heading or Record Data
Calculate or Totalise on Numeric Fields
New Records may replicate from last Record viewed
Print or Delete Record on display
Move to Next or Last Record
Automatic Scroll forward through File (with Stop option)

Enter Details and Field selection for Search
Criteria may be specific or wild-card
Related numeric field information may be totalised
Specific Numeric Field Searches offer conditions
of less than/equal to/greater than (operands)
All Results may be output to Screen or Printer

Offers printed reports on selected Field
Full File Description is available for report planning
Field Totals will be output for any Numeric Fields
Define Label Print Format
Selectable Single Label Printing

Sorting may be performed by any Field type
New Key Field Index may be displayed

Utilities incude Memory Available & Disk Handling routines

Price Cass. £14.95 Disc £19.95

Home Accounts Manager

HOME ACCOUNTS MANAGER is a comprehensive home management system designed to assist in the maintenance of any household budget. There are 4 major options from the main menu as follows:-

1. HOME ACCOUNTS Day to day expenses are entered and will be collated by the program to produce detailed expenditure reports to the screen or to a printer. Cheque payments are automatically posted to the bank account.

2. BANK ACCOUNT After entering details of your bank, branch and account number, you are able to enter all standard bank transactions, such as receiving payments, issuing cheques, setting up standing orders, entering bank charges, entering cash dispenser transactions and obtaining a bank statement to the screen or to a printer.

3. ADDRESS FILE You are able to enter up to 50 names, addresses and telephone numbers into a file which may then be sorted into aphabetical order, searched for particular names, scrolled in forward or reverse directions, or re-entered at a specific record number.

4. UTILITIES This option has a number of useful features plus full loans calculator for fast estimates of loan repayments.

Price Cass. £14.95 Disc £19.95

VISA

"dialog...

Access

20 NEW ROW LONDON WC2N 4LA Telephone: 0371 831 009

Phone for details of C128 prices

Choosing the right computer is a good start — but can you find the right software?

64
SUPERSOFT
MUSIC MASTER
FOR THE COMMODORE 64
64
SUPERSOFT
BUSICALC 3
FOR THE COMMODORE 64
64
SUPERSOFT
INTERDICTOR PILOT
FOR THE COMMODORE 64

At SUPERSOFT we're very conscious of the fact that people who spend several hundred pounds on computer equipment are looking to do rather more than play Space Invaders.

Financial planning is a rather grand name for something you've been doing all your life – making ends meet! Perhaps if Mr Micawber had used **BUSICALC** he would have been able to balance the books a little better.

For home, club or small business use BUSICALC 1 should pay for itself in no time at all; for larger companies we recommend BUSICALC 3, one of the few really valuable programs that you can learn to use in a day.

Although your Commodore 64 is a powerful musical instrument you need to be a pretty good programmer to understand how it all works. Unless, of course, you buy **MUSIC MASTER!**

To use MUSIC MASTER requires no prior musical knowledge, though in the hands of an experienced musician it will prove an invaluable tool. You don't need to know the first thing about programming either! MUSIC MASTER is the musical equivalent of a word processor, remembering the notes you play and allowing you to replay and edit them as you wish.

INTERDICTOR PILOT is a space flight simulator. Nowadays simulators are widely used to train pilots and astronauts because – to be frank – it's a lot cheaper (and safer) than the real thing!

Imagine, if you will, life in the 22nd century: space travel is commonplace, and on the outskirts of the galaxy the first war between civilizations is being fought. A shortage of trained pilots has prompted the Federation to develop a computer simulation that allows raw recruits to gain experience without paying for their mistakes with their lives. With the aid of your Commodore 64 you too can learn to pilot the Interdictor Mk 3 craft. But be warned – this is no game!

SUPERSOFT

SUPERSOFT, Winchester House, Canning Road,
Wealdstone, Harrow, Middlesex HA3 7SJ
Telephone: 01-861 1166

Other SUPERSOFT products include the **MIKRO ASSEMBLER** cartridge, the only assembler that's ideal for beginners yet powerful enough for the professional (most of our competitors use it!). The **VICTREE** cartridge adds dozens of commands to Basic including toolkit aids and disk commands; or on disk there's **MASTER 64,** a really comprehensive package for the keen programmer.

Of course, we do also publish games programs, and with classics like **STIX, QUINX** and **KAMI-KAZE** in our range we are one of the market leaders. But we most enjoy coming up with the sort of programs that are going to be in use for months and years, not hours and days – the sort of programs that make you glad that you bought a computer – and glad that you bought SUPERSOFT!

You won't find SUPERSOFT products on the shelves of your local supermarket. But most specialist shops stock titles from our extensive range (and are prepared to obtain other programs to order). However you can also buy direct by sending a cheque (pre-paid orders are post free!), by calling at our offices, or over the telephone using your ACCESS card.